

# THE JOURNAL OF MEDICAL EDUCATION

OFFICIAL PUBLICATION OF  
THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES



DECEMBER 1960 • VOLUME 35 • NUMBER 12

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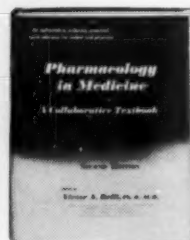
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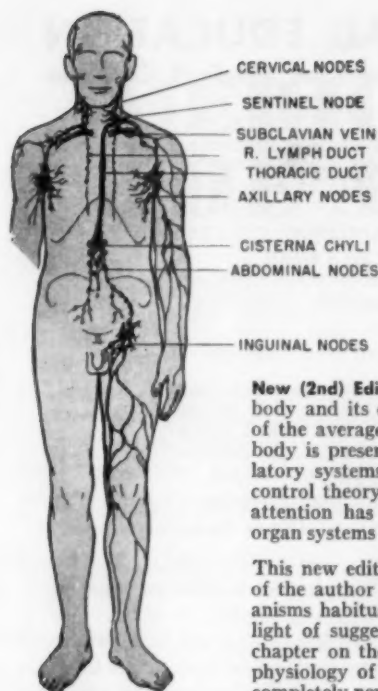
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*News from the Medical Schools:* Material for this section should be transmitted to the News Editor, Miss Neva Resek, 2530 Ridge Avenue, Evanston, Illinois. Announcements of major faculty and administrative appointments, news of distinguished visitors and significant educational developments will be included. It is not possible to publish notices on grants-in-aid for scientific research.

*Items of Current Interest:* Audio-visual news and notices from national and federal agencies appear in this section.

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# **GALLAGHER'S MEDICAL CARE OF THE ADOLESCENT**

By **J. ROSWELL GALLAGHER, M.D.**

Chief, Adolescent Unit, The Children's Hospital Medical Center, Boston,  
Lecturer on Pediatrics, Harvard Medical School

With **THE STAFF PHYSICIANS**

The Adolescent Unit, The Children's Hospital Medical Center, Boston

This new book is about adolescents themselves and the many illnesses, injuries, and personality difficulties experienced by boys and girls between the ages of 12 and 21. It is directed to all who care for their health: general practitioners, pediatricians, internists, various other specialists, college and school physicians, public health workers, nurses, and medical students. In short, it hopes to be of value to all who are concerned with the maintenance, improvement, or restoration of adolescents' health.

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As reviewed in JAMA, August 13, 1960

The format is excellent and conducive to pleasant reading. Any physician dealing with adolescents should profit from reading this book. It should be read by all medical students.

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### ASSOCIATION OF AMERICAN MEDICAL COLLEGES

72nd Annual Meeting, Nov. 13-15, 1961  
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1960

#### DECEMBER

AMERICAN RHEUMATISM ASSOCIATION, Sheraton Dallas Hotel, Dallas, Texas, Dec. 9. Mr. Gerard W. Speyer, 10 Columbus Circle, New York 19, Executive Secretary.

1961

#### JANUARY

AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS, Hotel Americana, Bal Harbour, Miami Beach, Fla., Jan. 8-13. Mr. John K. Hart, 116 S. Michigan Ave., Chicago 3, Executive Secretary.

AMERICAN COLLEGE OF SURGEONS, SECTIONAL MEETING, Hotel Dinkler-Tutwiler, Birmingham, Ala., Jan. 16-18. Dr. William E. Adams, Am. Coll. of Surgeons, 40 E. Erie St., Chicago 11, Secretary.

#### FEBRUARY

AMERICAN ACADEMY OF ALLERGY, Statler-Hilton Hotel, Washington, D.C., Feb. 6-8. Mr. James O. Kelley, 756 N. Milwaukee St., Milwaukee 2, Wis., Executive Secretary.

AMERICAN ACADEMY OF FORENSIC SCIENCES, Drake Hotel, Chicago, Feb. 23-25. Dr. W. J. R. Camp, 1853 W. Polk St., Chicago 12, Secretary-Treasurer.

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SOCIETY OF UNIVERSITY SURGEONS, University of Kansas Medical School, Kansas City, Kan., Feb. 9-11. Dr. Ben Eiseman, 4200 E. Ninth Ave., Denver 20, Secretary.

#### MARCH

AMERICAN ASSOCIATION OF ANATOMISTS, Palmer House, Chicago, Mar. 28-31. Dr. Louis B. Flexner, Dept. of Anat. School of Med., Univ. of Pa., Philadelphia 4, Secretary-Treasurer.

AMERICAN COLLEGE OF ALLERGISTS, Statler Hilton, Dallas, Tex., Mar. 12-17. Dr. Howard G. Rapaport, 16 E. 79th St., New York City, Secretary.

AMERICAN COLLEGE OF SURGEONS, SECTIONAL MEETINGS FOR SURGEONS AND GRADUATE NURSES, Hotels Bellevue-Stratford, Ben Franklin, and Sylvania, Philadelphia,

March 6-9. Dr. William E. Adams, 40 E. Erie St., Chicago 11, Secretary.

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AMERICAN SURGICAL ASSOCIATION, Boca Raton Hotel, Boca Raton, Fla., Mar. 20-24. Dr. W. A. Altmeier, Cincinnati General Hosp., Cincinnati 29, Ohio, Secretary.

NATIONAL HEALTH COUNCIL, NATIONAL HEALTH FORUM, "HEALTH AND COMMUNICATION," Waldorf-Astoria, New York City, Mar. 13-16. Mr. Philip E. Ryan, 1790 Broadway, New York 19, Executive Director.

NEUROSURGICAL SOCIETY OF AMERICA (members and guests), Boca Raton, Fla., Mar. 8-11. Dr. Raymond K. Thompson, 803 Cathedral St., Baltimore 1, Secretary.

#### APRIL

AEROSPACE MEDICAL ASSOCIATION (32nd annual meeting), Chicago, Apr. 24-26. Dr. Willson J. Kennard, c/o Washington National Airport, Washington, D.C., Secretary-Treasurer.

AMERICAN ACADEMY OF GENERAL PRACTICE, Miami Beach, Fla., Apr. 13-20. Mr. Mac F. Cahal, Volker Blvd. at Brookside, Kansas City 12, Mo., Executive Director.

AMERICAN ACADEMY OF NEUROLOGY (members and guests), Sheraton-Cadillac Hotel, Detroit, Apr. 27-29. Mrs. J. C. McKinley, 4307 E. 50th St., Minneapolis 17, Executive Secretary.

AMERICAN ACADEMY OF PEDIATRICS, spring meeting, Sheraton-Park Hotel, Washington, D.C., Apr. 10-12. For information write Dr. E. H. Christopherson, 1801 Hinman Ave., Evanston, Ill., Executive Director.

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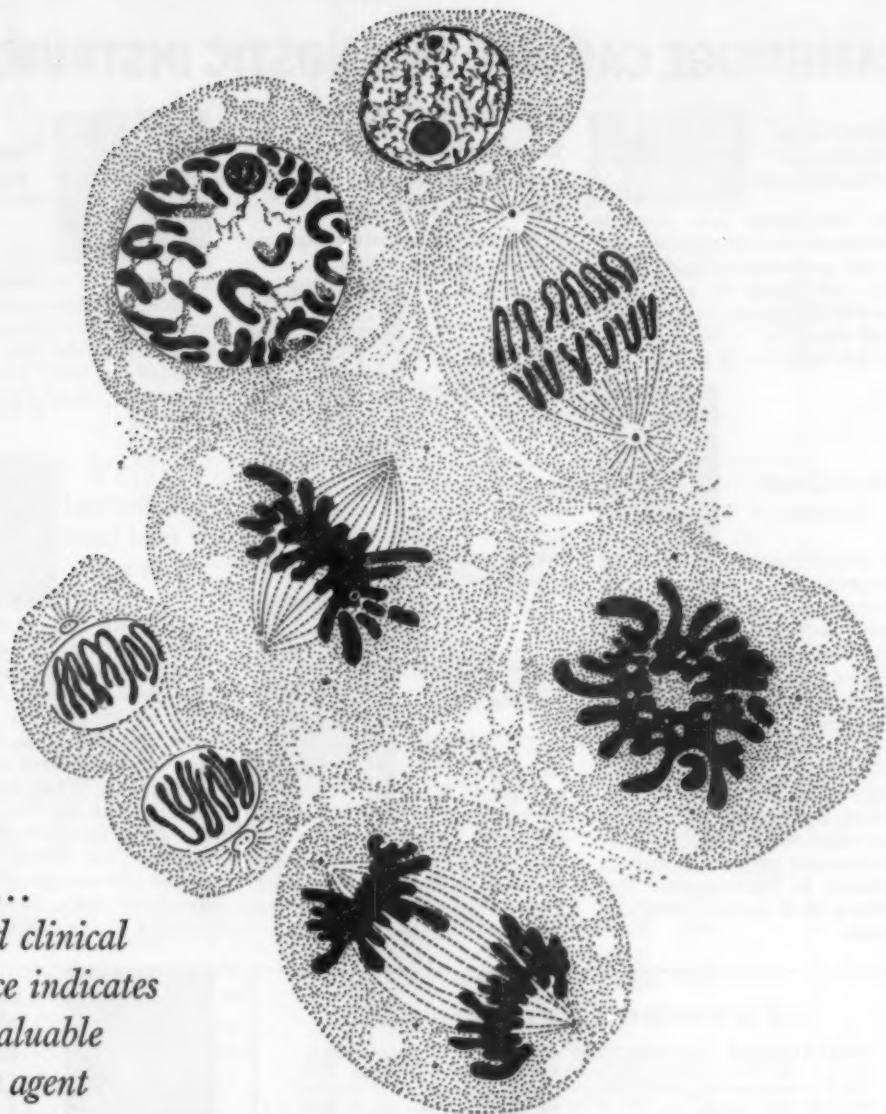
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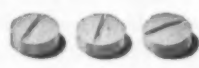
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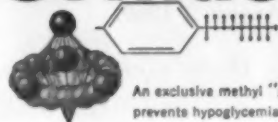
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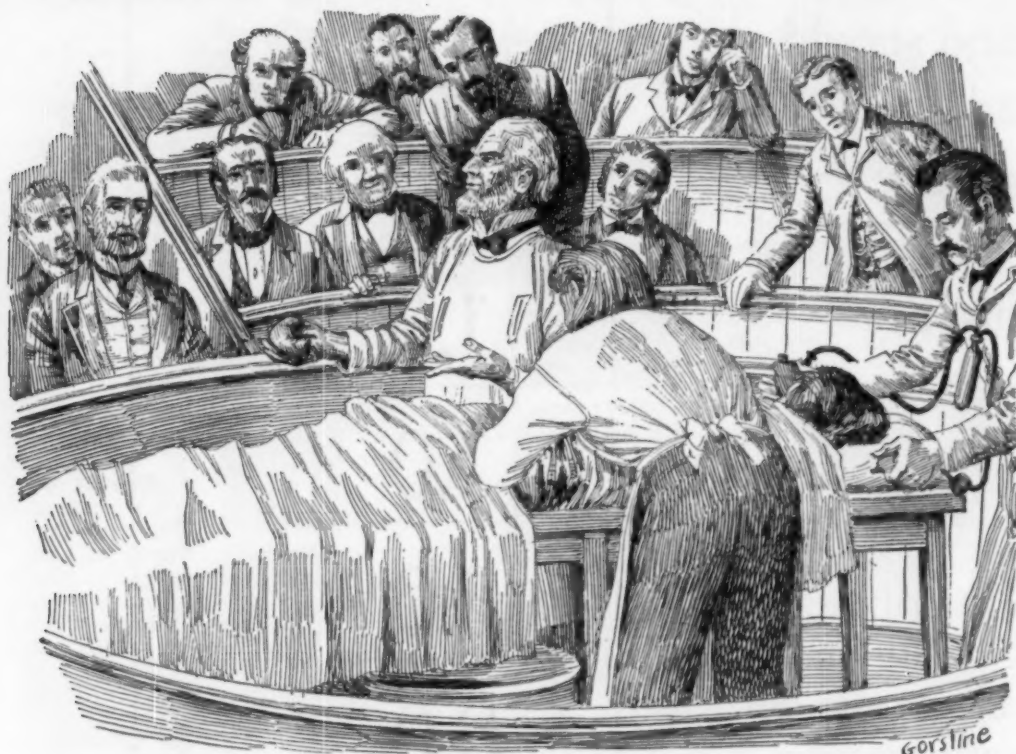
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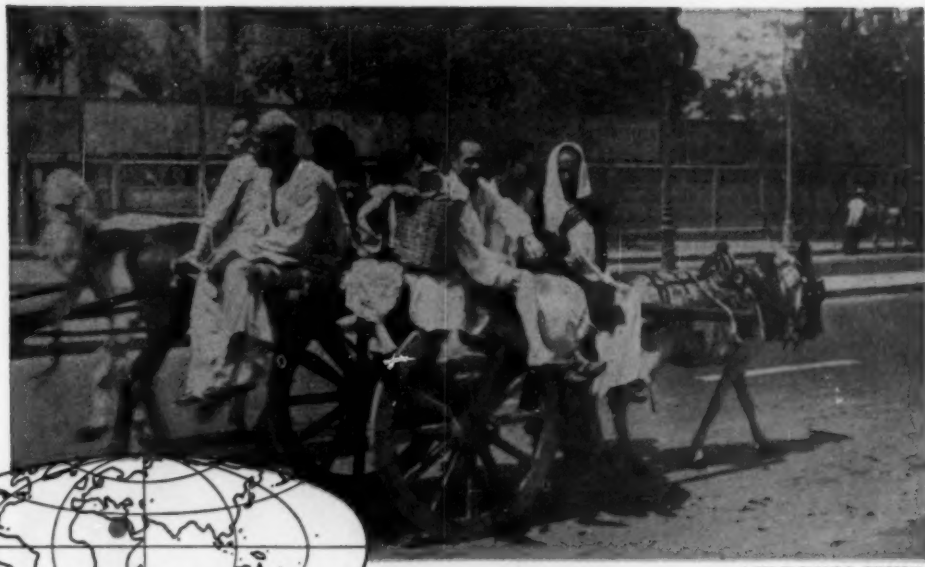


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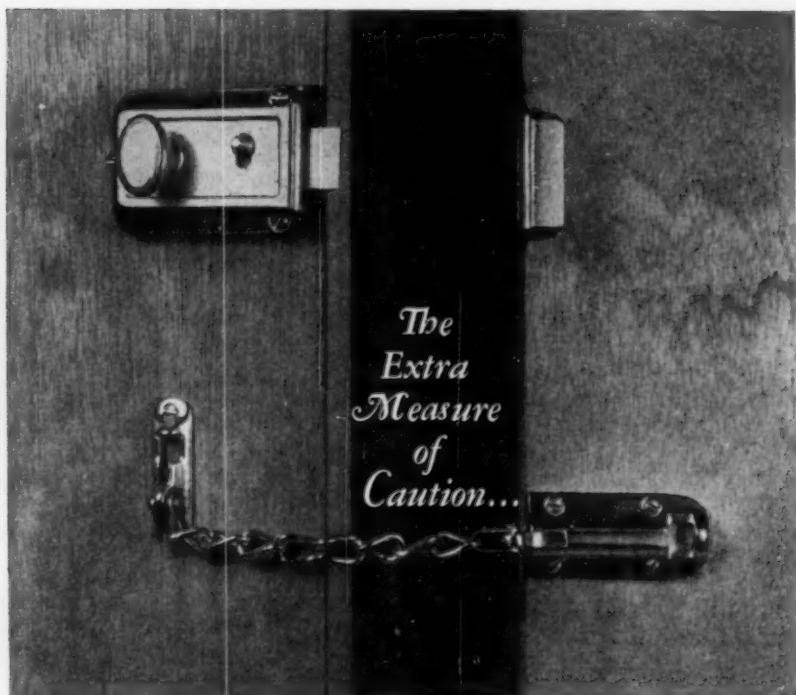
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# The Journal of MEDICAL EDUCATION

VOLUME 35 • NUMBER 12 • DECEMBER, 1960

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# *The Journal of* MEDICAL EDUCATION

VOLUME 35 • NUMBER 12 • DECEMBER, 1960

## Trends in Medical Practice

### An Analysis of the Distribution and Characteristics of Medical College Graduates, 1915-1950\*

HERMAN G. WEISKOTTEN, M.D.,† WALTER S. WIGGINS, M.D.,‡ MARION E.  
ALTENDERFER,§ MARJORIE GOOCH, Sc.D.,§ AND ANNE TIPNER#

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\* This study was partially supported by a grant (RG-6388) from the U.S. Public Health Service.

† Dean emeritus of the State University of New York, Upstate Medical Center, Syracuse, member of the Medical Advisory Board of Howard Hughes Medical Institute, and former chairman of the Council on Medical Education and Hospitals of the American Medical Association.

‡ Secretary, Council on Medical Education and Hospitals of the American Medical Association.

§ Members, Division of Public Health Methods, Public Health Service, U.S. Department of Health, Education, and Welfare.

# Assistant to the Secretary, Council on Medical Education and Hospitals of the American Medical Association.

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## INTRODUCTION

This report, the sixth of a series on "Trends in Medical Practice," is based on surveys of the graduates of American medical colleges of every fifth class from 1915 through 1950.<sup>1</sup> These studies were initiated with the hope that they might help medical educators learn more about the various capacities in which medical college graduates serve the public in the maintenance of health and the treatment of disease. Many industries have found it worth while to conduct programs of marketing research, and comparable studies in the field of medicine should be helpful in planning medical education.

Not only advances in medical science but also population growth and changes in the social and economic life of the American people have resulted in new and challenging demands in medical care. Trends in medical practice, such as increases in the number of specialists and of full-time salaried positions, represent changes that some people believe to be detrimental to the best medical care. Such trends may, over a period of time, adjust themselves to changing conditions. The findings of the present study of medical college graduates indicate that changes in some trends in medical practice are taking place. These changes, which result from the decisions of individual graduates of medical colleges in their choice of

careers, obviously are influenced by a great variety of factors.

The data for each of the six surveys were obtained from questionnaires<sup>2</sup> sent, some years after graduation, to each graduate of the specified year. About 34,200 questionnaires have been sent to the graduates of the eight classes studied. Of this number, 25,400 or nearly 75 per cent, were returned. The proportion of returns has varied from class to class but has never been less than 65 per cent:

Year of graduation	Per cent of questionnaires returned
1915	76.4
1920	77.1
1925	76.3
1930	75.8
1935	65.7
1940	72.3
1945	73.8
1950	79.2

See Appendix Table 1 for number and per cent of returns from each medical college for 1950 and for all classes studied.

These high rates of return give considerable confidence to the reliability of the data. Although information is not available to permit testing the representativeness of the re-

<sup>2</sup> Because the form and content of the questionnaires have changed somewhat from survey to survey, not all the data collected from the 1950 class are available for the earlier classes. However, many comparable items of information have been obtained from each of the surveys. A copy of the questionnaire used for the 1950 survey is included in the appendix.

<sup>1</sup> The findings from the earlier surveys have been published in the *Journal of the Association of American Medical Colleges* and the *Journal of Medical Education*. See References 11-15.

turns for method, type, and place of practice, there is no reason to suspect bias.

The studies have been made at varying periods after graduation. The surveys were originally planned to collect information 6 years after graduation, at which time it was thought the graduates would be more or less established in their careers. The first study included the graduates of the 1915 and 1920 classes and was made in 1926, 11 years after graduation of the former class. The graduates of 1925 and 1930 were each studied 6 years after graduation. Because of various circumstances including World War II, the demands of the military forces, and the lengthening of graduate training programs, it seemed advisable to increase the time between graduation and survey. The class of 1935 was studied 15 years after graduation; the 1940 class after 10 years; and the 1945 and 1950 classes after 9 years. The varying intervals between graduation and time of the survey should be kept in mind in interpreting some of the findings. Many of the findings of these studies which have now extended over nearly 35 years have been consistent, survey after survey lending considerable authority to the conclusions.

Obviously, the returned questionnaires can give information only up to the time they are filled out. In order to learn about changes that may have occurred subsequently, follow-up questionnaires have been sent to all the graduates of 1935, 1940, and 1945 who replied to the questionnaires originally sent to them. The results of these follow-up studies will be published at a later date.

Over the years covered by these studies, medical college admission requirements have been raised; the period of formal education has been lengthened; increased knowledge has resulted in increased specialization; and changes in diagnostic tools and techniques have tended to focus increasing attention on hospitalization. These changes have affected the careers of medical college graduates, but other special circumstances and experiences have also apparently influenced the graduates of some of the

classes included in these studies. For example an unusually high proportion of the 1930 graduates, who completed medical college during the financial depression, were in general practice or in full-time salaried positions at the time they were studied. It seems reasonable to presume that the financial burden of graduate training preparatory to specialty practice probably was too heavy for many of the graduates of this class and that the security of salaried practice was attractive.

War-time circumstances and experiences probably materially influenced the careers of the graduates of 1940 and subsequent years. Most of the class of 1940 would have finished a year's internship by the time war was declared in December, 1941, but further graduate training for many of this class was interrupted by voluntary military service and by the rather general curtailment of residency programs. The class of 1945 was the product of the war-time accelerated program which in many medical colleges required only 2 years of premedical education and concentrated the usual 4 academic years in medical college into 3 calendar years. About 90 per cent of this class were in the Army Specialized Training Program or the Navy V-12 Program and had obligated military service to perform after graduation (3).

#### AGE AT GRADUATION

One of the greatest differences among the graduates of the various classes studied is age at graduation. Table 1 shows that the 1950 class had a very different age composition from that of the other classes. The median age of the 1950 class (28.2 years) is the highest by 2 years, and the proportion of graduates 29 years of age and older (42.5 per cent) is more than twice that of any other class. In fact, 8 per cent of the 1950 class were 34 years of age or older, which also is twice as high as the corresponding percentage for any other class. This age composition is not unexpected, since nearly half the 1950 graduates had served in the armed forces before they entered medical college.

The 1945 class, on the other hand, had the lowest proportion of graduates in the age group 29 years and over (7.5 per cent), although the median age (26.2 years) is approximately the same as for some of the earlier classes. The accelerated programs and lowered premedical requirements undoubtedly account for the age composition of this class.

The unusual spread between age at graduation of the last two classes studied appears to be highly significant in influencing certain of the trends in medical practice to be presented.

#### METHOD OF PRACTICE

For each class studied, Table 2 shows the practice status of the graduates at the time the surveys were made. Physicians in private practice are those in individual, partnership, or group practice, whether their in-

comes were derived mainly from fees for service, percentage arrangements, or salaries. Physicians in nonprivate practice may be engaged in teaching and/or research, graduate training, hospital service, public health, military service, or medical administration. Of those graduates who reported that they were not in any type of practice at the time the studies were made, many were women who had temporarily left practice to raise families. Forty-two of the 1950 class reported themselves as not in practice—37 of them women.

Certain of the medical colleges have consistently shown a smaller than average percentage of their graduates in the private practice of medicine. These include Medical Evangelists, Colorado, Yale, University of Chicago, Johns Hopkins, and Woman's (Appendix Table 3). On the other hand, certain medical colleges have consistently shown a

TABLE 1  
PER CENT DISTRIBUTION OF MEDICAL COLLEGE GRADUATES, BY  
AGE AT GRADUATION: 1915-1950 CLASSES

YEAR OF GRADUATION	MEDIAN AGE (YEARS)	All ages	AGE AT GRADUATION		
			Under 24 years	24-28 years	29 years and over
1915	26.2	100.0	23.1	61.3	15.6
1920	26.4	100.0	17.9	66.6	15.5
1925	26.9	100.0	11.3	68.7	20.0
1930	26.3	100.0	21.3	65.7	13.0
1935	26.8	100.0	6.2	79.0	14.8
1940	26.8	100.0	4.5	82.4	13.1
1945	26.2	100.0	16.9	75.6	7.5
1950	28.2	100.0	7.8	49.7	42.5

See Appendix Table 2 for number of graduates by single years of age for 1935-1950 classes.

TABLE 2  
PRACTICE STATUS OF MEDICAL COLLEGE GRADUATES:  
1915-1950 CLASSES

YEAR OF GRADUATION	TOTAL	PRACTICE STATUS		
		Private practice	Nonprivate practice	Not in practice
1915	1,834		1,816	18
1920	1,947		1,932	15
1925	2,948		2,934	14
1930	3,436	2,666	761	9
1935	3,186	2,667	504	15*
1940	3,534	2,799	714	21*
1945	4,225	3,178	1,011	36*
1950	4,267	3,311	914	42

\* Includes a few graduates whose practice status was not reported.

somewhat higher than average percentage of graduates in private practice. These include Chicago Medical School, Stritch, Louisiana State, Tufts, Creighton, New York Medical College, Jefferson, Baylor, Texas, and Marquette.

Table 3 shows the proportion of graduates in various kinds of private and non-private practice. Because the surveys of the 1935 and 1940 classes did not present part-

ship (4). But the term "partnership" can have two connotations in medical practice organization. On the one hand, two or more physicians may enter into a partnership, share an office, and cover each other's practice without being formally organized as a group. On the other hand, many medical groups are organized wholly or in part as partnerships in the distribution of income. Because of these different usages of the

TABLE 3  
PER CENT DISTRIBUTION OF MEDICAL COLLEGE GRADUATES, BY METHOD  
OF PRACTICE: 1935-1950 CLASSES

METHOD OF PRACTICE	YEAR OF GRADUATION			
	1935	1940	1945	1950
Total:	100.0	100.0	100.0	100.0
Private practice:	83.7	79.2	75.2	77.6
Individual	73.9	66.4	47.3	49.7
Partnership	*	*	17.6	17.7
Group	9.8	12.8	9.5	9.2
Not specified	....	....	0.8	1.0
Nonprivate practice:	15.7	20.0	23.9	21.4
Resident, fellow	0.8	3.0	4.0	2.9
Other non-federal hospitals†	2.6	2.6	3.2	2.7
Teaching and/or research	2.3	4.9	6.0	6.3
Public health	2.2	1.7	1.7	2.2
Armed forces‡	2.4	2.9	4.0	2.4
Other federal government§	3.0	3.3	3.5	2.4
Industry	1.6	1.1	0.7	0.8
All other	0.8	0.5	0.8	1.7
Not in practice or method of practice not reported	0.6	0.8	0.9	1.0

\* Not reported separately.

† Includes graduates serving abroad in mission hospitals.

‡ Includes Army, Navy, and Air Force.

§ Excludes U.S. Public Health Service which is included in public health.

nership as one of the choices, some graduates probably reported themselves as in individual or group practice who were actually in partnerships. For this reason, the 1935 and 1940 figures for individual and group practice may be artificially high, and the decreasing trend in the proportion of graduates in individual practice may not be as marked as Table 3 suggests. The data show very few consistent trends in any of the components of private or nonprivate practice.

The simplest organization for the joint conduct of medical practice is the partnership, which legally resembles sole proprietor-

term, many graduates in partnership-type group practice probably found it difficult to fill out this part of the questionnaire. For this reason the distinction between partnership and group practice may not be valid.

For the United States as a whole, over one-third of the 1950 graduates in private practice were in partnership and group practice. The geographic division with the highest proportion in partnership and group practice was West North Central. New England and the Middle Atlantic division had the lowest proportions. In nine states, partnership and group practice accounted for



more than half the graduates in private practice. (See Appendix Table 4.)

A study made in 1958 by the Academy of General Practice of the method and type of practice of physicians graduated since 1940 showed somewhat higher proportions in private practice than are shown in Table 3 (6). However, it was not possible to ascertain from the published report exactly what was included in each method of practice. The proportions of physicians in residency training correspond rather closely with the proportions found in our surveys, when classes surveyed the same number of years after graduation are compared.

#### SALARIED POSITIONS

*Full-time.*—The proportions of graduates with full-time salaried positions have been somewhat higher among the last three classes studied than among the earlier classes with the exception of the "depression" class of 1930:

Year of graduation	Per cent of graduates in practice with full-time salaried positions
1915	15.2
1920	17.6
1925	16.7
1930	28.1
1935	16.9
1940	23.0
1945	26.8
1950	23.9

The increase in the proportion of full-time salaried positions for the 1945 class may, in part at least, be explained by the expansion of Veterans Administration and armed forces hospitals. By 1950, these hospital programs had stabilized and so did not offer as many opportunities for the 1950 graduates.

Some changes have occurred in the type of full-time positions held by the 1935-1950 graduates (Table 4). The proportion of graduates in both medical college teaching and/or research and other teaching and/or research doubled between the 1935 and 1950 classes. In absolute numbers the increase for total teaching and/or research has been

from 71 graduates to 269, or about a 280 per cent increase. The total amount of money spent for medical and health-related research in this country increased from \$148 million in 1950 to about \$587 million in 1959, or almost 300 per cent (2). The proportion of graduates in public health, the federal government, and industry have decreased. The trend for salaried group practice is irregular, being highest for 1940.

*Teaching and research.*—The questionnaire for the 1950 class was designed to provide information not only on the agency by which the graduates were employed but also on the nature of their professional activities. This makes it possible to determine the total number of graduates engaged full-time in teaching and/or research without regard to the agency by which employed. Table 3 shows 6.3 per cent (269 graduates) of the 1950 class were engaged in teaching and/or research. In that table some who were actually in this work were shown in other methods of practice such as the federal government or hospitals. If all graduates who indicated that their professional activity was teaching and/or research are added to those employed by medical schools, other educational institutions, and research institutions, there were 370 graduates or 8.7 per cent of the 1950 class in this field. These were employed by various agencies as follows:

Employing agency	Per cent of graduates
Total, teaching and/or research	8.7
Medical college	5.5
Other educational institution	0.3
Research institution	0.5
Non-federal hospital	0.7
Public health	0.5
Federal government	0.9
Industry	0.1
Pharmaceutical company	0.2

Great interest and concern exist today in obtaining the medical manpower necessary to staff the rapidly expanding programs of medical research financed in large part by the federal government. Moreover, if a substantial number of new medical colleges are established in the next decade, as recently recommended by the Consultant Group on

TABLE 4  
PER CENT DISTRIBUTION OF MEDICAL COLLEGE GRADUATES WITH FULL-  
TIME SALARIED POSITIONS, BY TYPE OF POSITION: 1935-1950 CLASSES

TYPE OF FULL-TIME SALARIED POSITION	1935	YEAR OF GRADUATION		
		1940	1945	1950
Number of graduates with full-time salaried positions	535	808	1,124	1,009
Total:	100.0	100.0	100.0	100.0
Group practice	9.2	13.2	10.0	12.4
Non-federal hospitals:	18.7	24.9	24.9	23.6
Resident, fellow	6.4	18.3	13.0	11.6
Tuberculosis sanatoria	1.9	1.0	1.0	0.2
Mental hospitals	2.2	1.5	3.0	2.4
Mission hospitals	0.2	0.9	1.0	1.7
All other	8.0	3.2	6.9	7.7
Teaching and/or research:	13.3	18.3	22.6	26.1
Medical college*	11.6	15.6	19.5	22.9
Other	1.7	2.7	3.1	3.2
Public health:	15.3	7.1	6.5	7.8
U.S. Public Health Service	3.2	3.0	3.5	2.8
State and local health departments	9.9	3.2	2.2	4.6
Other	2.2	0.9	0.8	0.4
Federal government:	32.1	27.0	28.4	20.2
Armed forces†	14.2	12.9	15.0	10.0
Veterans Administration	16.8	13.2	12.9	9.9
Other	1.1	0.9	0.5	0.3
Industry	8.2	4.2	2.5	3.2
All other	3.2	5.3	5.1	6.7

\* Includes geographic full-time faculty.

† Includes Army, Navy, and Air Force.

TABLE 5  
MEDICAL COLLEGES WITH HIGHEST PERCENTAGES OF GRADUATES IN  
FULL-TIME TEACHING AND/OR RESEARCH: 1935-1950 CLASSES

MEDICAL COLLEGE	TOTAL	YEAR OF GRADUATION			
		1935	1940	1945	1950
All medical colleges:	5.7	2.3	4.9	6.0	8.7
Yale	21.6	15.6	29.7	14.3	28.6
University of Chicago	19.4	6.2	23.1	10.6	31.1
Harvard	17.8	4.9	18.3	22.8	24.3
Rochester	16.9	5.4	12.2	17.0	27.6
Johns Hopkins	16.5	16.7	11.3	21.7	15.7
Columbia	12.5	....	11.2	13.6	22.0
Duke	11.8	....	15.2	15.1	12.1
California, San Francisco	10.6	2.7	12.5	10.5	13.8
University of Virginia	9.5	8.6	19.5	2.2	8.5
Michigan	9.3	5.7	10.0	10.4	10.3
Minnesota	9.2	3.2	3.6	10.1	19.0
Vanderbilt	9.0	8.8	9.3	4.5	14.7

Medical Education to the Surgeon General of the Public Health Service (8), greatly increased numbers of teachers will have to be found. For these reasons a special analysis is included here on the medical colleges that have trained the highest proportions of graduates for teaching and/or research. Table 5 shows the twelve medical colleges that have the highest proportions of graduates of the last four classes studied in this field. Whereas many of these medical colleges show increasing proportions of graduates in teaching and/or research, there are some exceptions. The University of Virginia shows almost one-fifth of the 1940 class but only 2 per cent of the 1945 class in this field. Vanderbilt has an unusually low proportion of its 1945 class in teaching and/or research.

In terms of absolute numbers, Harvard, with 79 graduates of the four classes studied in teaching and/or research, has contributed the most to this field. Because some medical colleges have comparatively large graduating classes, some of those which have contributed the most graduates to teaching and/or research are not represented in the percentage data in Table 5. The twelve medical colleges supplying the highest number of graduates for teaching and/or research are:

Medical college	No. 1935-1950 graduates in teaching and/or research
Total (all colleges):	872
Harvard	79
Columbia	39
Johns Hopkins	34
Pennsylvania	34
Yale	33
Michigan	32
Rochester	31
Minnesota	29
Northwestern	29
New York University	27
University of Chicago	26
Duke	22

Almost 30 per cent of the 1950 medical college graduates who were engaged in medical college teaching and/or research were on the staff of the medical college from which they were graduated. This figure varied greatly from medical college to medical college. Certain medical colleges apparently

train medical faculty for the country as a whole, others primarily for their own staffs. Of the eleven medical colleges with more than five of their 1950 graduates engaged in full-time medical college teaching and/or research, only the University of Chicago had a large proportion on its own staff:

MEDICAL COLLEGE	No. 1950 GRADUATES IN FULL-TIME MEDICAL COLLEGE TEACHING AND/OR RESEARCH	
	At own medical college	At other medical colleges
Harvard	3	17
Univ. of Chicago	6	7
Northwestern	2	10
Columbia	0	12
Pennsylvania	3	7
Rochester	3	6
Yale	0	7
New York Univ.	0	7
Illinois	1	5
Johns Hopkins	1	5
Cornell	2	4

Many of the medical colleges with only one or two of their 1950 graduates engaged in teaching and/or research had all such graduates on their own staffs.

In addition to training physicians for teaching and research positions, many medical colleges also train Ph.D. and Sc.D. students who frequently fill full-time teaching and research positions in the basic science departments of medical colleges. In 1958-59, 68 per cent of the full-time faculty in the basic science departments of medical colleges in the United States held Ph.D. degrees only (16).

*Part-time salaried positions.*—The proportion of graduates with part-time salaried positions reached a peak for the 1920 class:

Year of graduation	Per cent of graduates in practice with part-time salaried positions
1915	16.4
1920	19.9
1925	19.8
1930	19.8
1935	14.1
1940	14.9
1945	*
1950	15.7

\* Question not asked of the 1945 class.

Between the 1935 and 1950 classes marked shifts occurred in the proportions of graduates in the different types of part-time salaried positions (Table 6). Those in non-federal hospitals, medical college teaching and/or research, and other teaching and/or research have increased, whereas those in the federal government, group practice, and industry have decreased.

#### TYPE OF PRACTICE

In each survey the graduates were asked to indicate their type of practice as either general practice, general practice with special attention to a specialty, practice limited to a specialty, or not in practice at the time of the survey. Those graduates in residency

training were included with those limiting practice to a specialty in the analysis. In comparing the data on type of practice for the various classes, it must be kept in mind that the time elapsed between graduation and the date of the survey varied from 6 years for the graduates of 1920, 1925, and 1930 to as much as 15 years for the graduates of 1935.

Table 7 shows the distribution of the graduates of each surveyed class by type of practice. The proportion of graduates who were giving special attention to a specialty declined from 41 per cent of the 1920 and 1925 graduates to a low of 6 per cent of the 1945 and 7 per cent of the 1950 graduates. This decline reflects a real change in the pat-

TABLE 6  
PER CENT DISTRIBUTION OF MEDICAL COLLEGE GRADUATES WITH  
PART-TIME SALARIED POSITIONS, BY TYPE OF POSITION:  
1935, 1940, AND 1950 CLASSES

TYPE OF PART-TIME SALARIED POSITION	YEAR OF GRADUATION*		
	1935	1940	1950
Number of graduates with part-time salaried positions	446	522	663
Total:	100.0	100.0	100.0
Group practice	1.8	1.1	0.5
Non-federal hospitals:	9.7	12.9	15.2
Tuberculosis sanatoria	1.1	1.0	0.2
Mental hospitals	0.7	1.0	3.3
Mission hospitals	.....	.....	.....
Resident, fellow	.....	.....	.....
All other	7.9	10.9	11.7
Teaching and/or research:	14.3	16.3	22.0
Medical college	13.2	14.4	19.6
Other	1.1	1.9	2.4
Public health:	25.6	22.6	26.9
U.S. Public Health Service	0.4	1.0	1.7
State and local health departments	7.2	8.4	22.8
Other	18.0	13.2	2.4
Federal government:	14.5	13.2	7.7
Armed forces†	0.4	1.9	2.0
Veterans Administration	13.7	10.9	5.1
Other	0.4	0.4	0.6
Industry	15.3	13.0	10.1
All other	18.8	20.9	17.6

\* The 1945 graduates were not asked about the salary status of part-time positions.

† Includes Army, Navy, and Air Force.

tern of preparation for the limited practice of a specialty. During the earlier years of these studies many physicians started practice as general practitioners, then began to give special attention to a specialty, and eventually limited their practice to a specialty. In recent years, the specialties have been recognized as distinct phases of medical practice which require several years of special training. A graduate intending to limit his practice to a specialty is more likely to enter a residency training program immediately after internship than to spend several years in general practice giving increasing attention to a specialty.

many of this class received financial support from the federal government during a period of graduate training after discharge from military service. These facts account in part for the high proportion of 1945 graduates who have limited their practice to a specialty.

After three successive increases between earlier classes, a drop in the percentage of limited specialists occurred between the 1945 and 1950 classes. The 1958 survey made by the Academy of General Practice of 1940-1954 medical graduates also shows a reversal in the trend toward specialization (6). The findings of this study must be used

TABLE 7  
PER CENT DISTRIBUTION OF MEDICAL COLLEGE GRADUATES, BY TYPE  
OF PRACTICE: 1915-1950 CLASSES

YEAR OF GRADUATION	TOTAL*	General practice	Special attention to a specialty	Limited to a specialty
1915	100.0	22.7	36.0	41.3
1920	100.0	24.0	40.7	35.3
1925	100.0	25.2	40.7	34.1
1930	100.0	31.6	38.0	30.4
1935	100.0	23.2	20.5	56.3
1940	100.0	21.1	14.1	64.8
1945	100.0	19.1	5.9	75.0
1950	100.0	24.6	7.3	68.1

\* Excludes those not in practice and those who did not report type of practice.

See Appendix Table 5 for number of graduates of each medical college by type of practice for the 1950 class.

As Table 7 indicates, the other major trend is the increasing percentage of graduates who have limited their practice to a specialty. There are several irregularities in the trend, but some of these can be at least partially explained by certain circumstances known to have affected the different classes. The low figure (30 per cent) for the 1930 graduates was probably due to the fact mentioned above—that this was a "depression" class. Many of the graduates may have been under financial pressure which prevented them from entering upon periods of graduate training in preparation for the limited practice of a specialty.

A large proportion of the 1945 class served as physicians in the armed forces and saw the prestige and unusual opportunities accorded limited specialists. Furthermore,

with caution, since the returns included only 7 per cent of the classes covered. There is reason to suppose that proportionately more of the members of the Academy answered the questionnaire than did physicians who were not members.

*Relation to age at graduation.*—One of the main differences between the 1945 and 1950 classes was age at graduation. Only 8 per cent of the 1945 class were 29 years of age and over at graduation, compared with 42 per cent of the 1950 class (Table 1). The data available make possible an investigation of the relation between age at graduation and type of practice for the four last classes studied. Table 8 shows the percentage of graduates in each age group who have limited their practice to a specialty. The corresponding percentages for graduates in gen-



eral practice and for those giving special attention to a specialty are shown in Appendix Table 6.

For each of the four classes, the proportion of graduates who had limited their practice to a specialty varied inversely with age at graduation. For the 1950 class, 83 per cent of those who were under 24 at the time of graduation had limited their practice to a specialty at the time of the survey, whereas only 56 per cent of the graduates who were 29 years of age and over at graduation had done so.

Although there was a drop in the proportion of limited specialists of all ages between the 1945 and 1950 classes, this proportion

increased slightly for the two younger age groups shown in Table 8.

A method of removing the effect of age, which is frequently used in statistical analyses, is "age-adjustment." The theoretical percentages of graduates by type of practice obtained by this device are those that would have been found if there had been no difference in the age distribution of the four classes (Chart 1). The effect of "age-adjustment" has been to wipe out the decrease in the proportion of graduates limiting practice to a specialty between the 1945 and 1950 classes.

*By method of practice.*—Most of the graduates in nonprivate practice have limited

TABLE 8  
PER CENT OF MEDICAL COLLEGE GRADUATES WHO HAVE LIMITED  
PRACTICE TO A SPECIALTY, BY AGE AT GRADUATION:  
1935-1950 CLASSES

AGE AT GRADUATION	YEAR OF GRADUATION			
	1935	1940	1945	1950
All ages:	56.3	64.8	75.0	68.1
Under 24 years	70.1	75.9	82.2	83.1
24-28 years	57.8	66.7	75.1	76.2
29 years and over	41.9	49.3	57.0	55.9

See Appendix Table 6 for percentages of graduates in general practice and giving special attention to a specialty by age for the 1935-1950 classes.

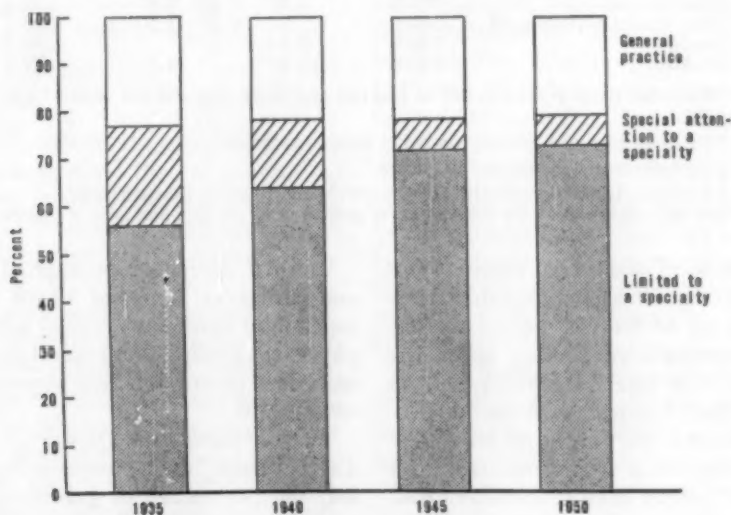


CHART 1.—Age-adjusted percentages of medical college graduates with different types of practice: 1935-1950 classes.

their practice to a specialty (Table 9). A few graduates practicing in hospitals (principally medical missionaries) and in public health reported themselves as in general practice or as giving special attention to a specialty. A number of graduates engaged in teaching and/or research reported that this question was not applicable to them.

*By division and state.*—Appendix Table 8 shows the distribution by type of practice for the 1950 graduates in private practice in each geographic division and state. The greatest variation from the United States average is for the New England division, where the per cent of limited specialists was

medicine (1). If graduates in general practice and those giving special attention to a specialty are combined, only 32 per cent of the 1950 graduates are available for general practice compared with 59 per cent of the 1915 graduates:

Year of graduation	Per cent of graduates available for general practice
1915	58.7
1920	64.7
1925	65.9
1930	69.6
1935	43.7
1940	35.2
1945	25.0
1950	31.9

TABLE 9

PER CENT DISTRIBUTION OF MEDICAL COLLEGE GRADUATES WITH VARIOUS METHODS OF PRACTICE, BY TYPE OF PRACTICE: 1950 CLASS

METHOD OF PRACTICE	TOTAL*	TYPE OF PRACTICE		
		General practice	Special attention to a specialty	Limited to a specialty
Total:	100.0	24.6	7.3	68.1
Private practice:	100.0	30.2	8.1	61.7
Individual	100.0	33.7	7.9	58.4
Partnership	100.0	29.5	8.4	62.1
Group	100.0	15.9	9.2	74.9
Nonprivate practice:	100.0	3.4	4.3	92.3
Resident, fellow	100.0	...	...	100.0
Other non-federal hospitals†	100.0	8.8	11.4	79.8
Teaching and/or research	100.0	0.4	2.0	97.6
Public health	100.0	8.5	6.4	85.1
Armed forces‡	100.0	1.9	6.9	91.2
Other federal government§	100.0	...	1.9	98.1
Industry	100.0	3.1	...	96.9
All other	100.0	12.9	8.1	79.0

\* Excludes those graduates not in practice and those who did not report type of practice.

† Includes graduates serving abroad in mission hospitals.

‡ Includes Army, Navy, and Air Force.

§ Excludes U.S. Public Health Service which is included in public health.

See Appendix Table 7 for the number of graduates by method and type of practice.

extremely high. The Middle Atlantic division also had considerably higher than average percentage of limited specialists. The lowest percentages of limited specialists were in the East and West South Central and West North Central divisions.

*Physicians available for general practice.*—The increasing trend toward specialization has led many people to express concern that there will soon be a serious shortage of physicians available for the family practice of

Even if specialists in internal medicine and pediatrics (some of whom serve the function of family physicians) are added to physicians available for general practice, the number of potential family physicians is decreasing (8).

*Practice limited to a specialty.*—Appendix Table 9 shows, for the various classes studied, the percentage of graduates of each medical college who have limited their practice to a specialty. As mentioned above,

there has been a steadily increasing percentage of specialists since 1930, except for the graduates of 1950. However, individual schools show considerable variation from the general trend as well as great variation among the various classes studied. Five medical colleges—Northwestern, Johns Hopkins, Harvard, Michigan, and Cornell—show a higher than average proportion of limited specialists for all classes studied. On the other hand, six medical colleges—Medical Evangelists, Louisville, Creighton, Hahnemann, Pittsburgh, and Baylor—all have shown a lower than average proportion of limited specialists for all classes studied.

Over one-third of the 1950 graduates who had limited their practice to a specialty reported that they had decided upon the field of specialization during medical college and about the same number had decided during internship training. About equal numbers of the rest made the decision during military service, during residency training, and after a period of practice:

When specialty decided upon	Per cent of graduates limiting practice to a specialty
Total:	100.0
Before medical college	3.7
In medical college	34.4
During internship	35.8
During military service	8.9
During residency	8.1
After a period of practice	8.0
Not reported	1.1

A study of students at Cornell University Medical College found that 35 per cent of the first-year medical students and 74 per cent of the fourth-year students expected to devote most of their working time to specialty practice (5).

Some specialties show, in general, an increasing proportion of graduates for each succeeding class studied and others a decreasing proportion, but none of the changes from one class to the next are great (Table 10). For each of the four classes internal medicine was chosen by the largest proportion of graduates limiting practice to a specialty, followed by surgery. For the 1935 and 1940 classes, obstetrics and gynecology

ranked third but was replaced by pediatrics for the 1945 and 1950 classes (Appendix Table 10).

**American Board certification.**—Because many of the American Specialty Boards require long periods of graduate training and practice limited to a specialty as a prerequisite to certification, the proportion of graduates in the various classes who are certified is related to the number of years elapsed between graduation and the survey. This is shown below:

Year of graduation	Per cent limited specialists with American Board certificate at time surveyed	Years between graduation and survey
1935	61.9	15
1940	40.6	10
1945	46.2	9
1950	46.6	9

See Appendix Table 11 for the per cent of graduates by specialty who hold American Board certificates.

A factor probably influencing the proportion of physicians seeking board certification is the belief in the values and advantages of such certification. Although the 1945 and 1950 graduates were surveyed 1 year sooner after graduation than were the 1940 graduates, higher proportions of limited specialists in these later classes were certified. The follow-up studies of the 1935, 1940, and 1945 graduates will throw further light on this subject.

#### PLACE OF PRACTICE

Analyses of place of practice for graduates of existing medical colleges and of the factors related to the geographic distribution of these graduates are of especial importance to the present planning for the establishment of new medical colleges.

Among the factors known to influence the choice of a place of practice are: demand for medical services, location of the medical college attended, place of residence before entering medical college, place where internship and/or residency was served, the methods and quality of transportation and communication, ready accessibility of hospital

and consultation facilities, climate, availability of good schools, and many other personal, social, and economic factors.

The relative importance of certain of these factors on the selection of place of practice can be evaluated from the data of the surveys of medical college graduates. The analysis that follows is limited to a consideration of graduates in private practice.

*Division and state.*—Demand for medical services may be measured by various means, including population distribution and relative wealth. Appendix Table 12 shows the distribution of the graduates of the last four classes studied, together with the distribution of the population and the per capita income for each geographic division and state. Three divisions, Pacific, New England, and

Mountain have in general attracted more graduates than would be expected on the basis of population. The first two of these also have higher than average per capita income levels. There have been marked changes in the proportions of graduates practicing in the various divisions during the time covered by these surveys. Pacific, South Atlantic, and East South Central have received in general increasing proportions of the successive classes studied. Per capita income does not appear to be an important factor in the distribution of medical graduates among the geographic divisions.

However, when the individual states are considered, the picture is somewhat different. Only Mississippi, Tennessee, and Louisiana, of the ten states with the lowest per

TABLE 10  
PER CENT DISTRIBUTION OF GRADUATES WHO HAVE LIMITED PRACTICE  
TO A SPECIALTY, BY SPECIALTY: 1935-1950 CLASSES

SPECIALTY	YEAR OF GRADUATION			
	1935	1940	1945	1950
Number of limited specialists	1,768	2,260	3,128	2,856
Total:	100.0	100.0	100.0	100.0
Specialties generally increasing:				
Anesthesiology	2.2	3.0	4.0	5.0
Internal medicine	18.6	23.3	23.7	22.1
Neurological surgery	0.7	0.9	1.1	1.0
Neurology	0.2	0.1	0.4	0.8
Pathology, clinical pathology	2.0	3.5	3.7	4.1
Pediatrics	6.5	6.9	9.2	10.1
Physical medicine	0.3	0.3	0.3	0.7
Psychiatry	4.9	4.6	6.5	7.9
Specialties generally decreasing:				
Allergy	0.7	0.3	0.2	0.2
Dermatology	2.7	2.0	2.0	1.6
Obstetrics and gynecology	9.4	9.3	8.3	8.9
Ophthalmology, otology, laryngology, rhinology	3.7	1.5	0.6	0.2
Otology, laryngology, rhinology	3.1	3.1	2.5	1.2
Proctology	1.0	0.3	0.1	0.1
Psychiatry, neurology	3.0	1.8	1.3	0.7
Public health	3.6	1.2	0.8	0.8
Pulmonary diseases	1.4	0.7	0.5	0.1
Urology	3.4	3.1	2.9	2.7
All other specialties:				
Ophthalmology	4.5	4.0	3.4	4.0
Orthopedic surgery	4.1	5.2	3.8	4.4
Plastic surgery	0.5	0.6	0.6	0.6
Radiology	5.7	5.0	5.9	6.1
Surgery	13.0	16.4	13.1	13.0
Thoracic surgery	0.6	0.7	2.4	0.5
All other	4.2	2.2	2.7	3.2

See Appendix Table 10 for number of graduates who have limited their practice to each specialty for 1935-1950 classes.

capita income, received their proportionate share of the 1950 graduates, even though all ten of these states have medical colleges. On the other hand, New York, New Jersey, Illinois, Maryland, and Ohio, of the ten states with the highest per capita income, failed to receive their proportionate share of graduates of United States medical colleges. Four of these states are among those with the highest ratios of physicians to population. The large numbers of foreign-trained physicians in some of these states account in part for these favorable ratios.

*Relation to location of medical college.*—The proportions of graduates in private practice in the same city and in the same state as the medical college attended have decreased slowly but steadily from the 1930 to the 1950 class:

YEAR OF GRADUATION	PLACE OF PRACTICE VS. LOCATION OF MEDICAL COLLEGE		
	Same city	Same state	Same division
1930	20.6	55.7	*
1935	19.5	50.9	63.5
1940	17.7	46.0	59.6
1945	16.7	45.9	60.0
1950	14.8	45.6	59.3

\* Data not available.

See Appendix Table 13 for corresponding data for each medical college for the 1950 class.

The decreasing trend in per cent locating in the same state as the medical college is caused primarily by the movement of graduates of privately controlled medical colleges:

YEAR OF GRADUATION	PER CENT OF GRADUATES IN PRIVATE PRACTICE IN SAME STATE AS MEDICAL COLLEGE	
	Public	Private
1930	56.3	55.4
1935	55.0	48.6
1940	53.4	41.6
1945	52.2	41.8
1950	55.3	38.2

For the public medical colleges there has been no consistent trend in the proportion of graduates practicing in the same state as the medical college. For each class, the public medical colleges have contributed higher proportions of private practitioners to their

own states than have the private medical colleges.

The variation among the individual medical colleges in the proportion of graduates practicing in the same place as the medical college is great (Appendix Table 13). Medical colleges located in communities of less than 50,000 population tend to have small proportions of their graduates in private practice in the city in which the medical college is located—Iowa, Michigan, Vermont, University of Virginia.

When state of practice is considered, although the average proportion of graduates practicing in the same state as the medical college is smaller for the private than for the public medical colleges, a few of the private colleges show higher proportions than the average for the public colleges (Southern California, Stanford, Boston University, Buffalo, Pittsburgh, and Baylor). On the other hand, three public medical colleges (Nebraska, Utah, and Vermont) have smaller percentages of their graduates practicing in the same state as the medical college than the average for the private colleges.

*Relation to place of prior residence.*—When place of practice is considered in relation to place of residence before entering medical college,<sup>3</sup> the trends in the proportion of private practitioners in the same place are downward for city, state, and division:

YEAR OF GRADUATION	PLACE OF PRACTICE VS. PLACE OF PRIOR RESIDENCE		
	Same city	Same state	Same division
1935	35.8	66.1	74.7
1940	33.2	62.4	71.6
1945	30.4	60.7	71.3
1950	25.0	57.8	68.5

See Appendix Table 14 for corresponding data for each medical college for the 1950 class.

This trend is consistent with trends toward mobility among the general population of the United States.

Since over half of the medical college

<sup>3</sup> Since a definition of this term was not included on the questionnaires, the question may have been interpreted differently by different respondents.



graduates were found to be in practice in the same state as their residence before entering medical college, the relative numbers of graduates from various states were studied in relation to certain characteristics of the states. The number of 1950 medical college graduates by state of residence before entering medical college was related to the number of young people in the state according to the 1950 census. The per capita income of each state in 1946 was used as a measure of economic status. The ratio of physicians to population in each state<sup>4</sup> was used as a measure of adequacy of physician supply. The results are summarized below:

Per capita income group	1950 medical graduates/100,000 persons aged 20-24 yr.	Physicians/ 100,000 population, 1957
Top 10 states	41.1	135
Middle 28 states	37.4	102
Bottom 10 states	27.7	83

The high income states had proportionately more of their young people among the 1950 medical college graduates than did the low income states. The average rate of 1950 medical college graduates in relation to young people in the eleven states which had no medical colleges was 32.

*Relative importance of factors influencing place of practice.*—The preceding discussion has shown that place of prior residence is more important than location of medical college in determining place of practice. For the 1945 and 1950 graduates, location of internship and residency training was obtained. This makes it possible to study the relative importance of place of prior residence, location of medical college, place of internship, and place of residency training upon place of practice.

Of the graduates with residency training, the highest proportion were practicing in the same state as that in which they served their residences. The relative importance of the four factors is shown below:

<sup>4</sup> Computed from data in reference (8).

PER CENT OF GRADUATES WITH RESIDENCY TRAINING PRACTICING IN SAME STATE AS:	YEAR OF GRADUATION	
	1945	1950
Residency training	58.8	62.8
Prior residence	54.6	52.5
Internship	42.3	47.5
Medical college	42.4	42.3

For two factors—state of residency training and state of internship—there were higher proportions of 1950 graduates than of 1945 graduates practicing in the same state. The proportion practicing in the same state as prior residence declined slightly, while the proportion practicing in the same state as the medical college stayed about the same.

Chart 2 shows the interrelationships among the four factors for the 1950 graduates. The percentages are based on the last column of Table 11. The numbers beside each segment of the bars refer to the line numbers at the left side of this table. Twenty-five per cent of the graduates were practicing in the same state as that of residency training, prior residence, internship, and medical college. This per cent is represented in Chart 2 by the black segment numbered 1 at the base of each bar. Seven per cent were practicing in the same state as that in which they took their residency and internship training and in which they lived before entering medical college. The striped sections numbered 2 on the first three bars represent this figure. State of practice was the same as that of residency training and prior residence for 2.7 per cent of the graduates. This figure is represented by the cross-hatched segments numbered 6 on the first and second bars. The white sections numbered 12, 13, 14, and 15 at the top of each bar represent the per cent of graduates whose state of practice is the same as only the factor named at the top of the bar.

If city of practice is considered, the order of importance of the four factors is the same as for state of practice:

PER CENT OF GRADUATES WITH RESIDENCY TRAINING PRACTICING IN THE SAME CITY AS:	YEAR OF GRADUATION	
	1945	1950
Residency training	33.3	32.5
Prior residence	26.6	24.9
Internship	21.5	23.4
Medical college	19.4	18.2

For the 1950 graduates, 8 per cent were practicing in the same city as all four factors. The interrelationships among the factors may be seen in Table 11. For both state and city of practice, the location of the medical college is the least important factor.

*Size of community of practice.*—Ever since the pioneering years of the 18th and early 19th centuries, the greatest need for physicians has been in small communities. Many inducements have been offered to medical college graduates to persuade them to practice in such communities—state scholarship and loan programs, subsidies, and provision of office and clinic facilities. For example, seventeen states have set up scholarship or loan programs administered by state and county medical societies, women's auxiliaries, joint medical society and

state boards, and special organizations (9).

Many of the recipients of these scholarships or loans have been induced to begin practice in small communities. At least one state (Mississippi) which has had experience with a state medical scholarship program since 1946 now believes that its needs have changed and consequently that its program should be revised (7).

Certain over-all trends are clear (Table 12). The percentage of graduates locating in cities of 500,000 and over decreased between the 1930 and 1950 classes. Between the 1945 and 1950 classes the per cent of graduates locating in communities of 100,000–499,999 and in those of 25,000–99,999 population also decreased. Since the 1940 class, an increasing percentage of graduates have located in the smallest size communities. Since

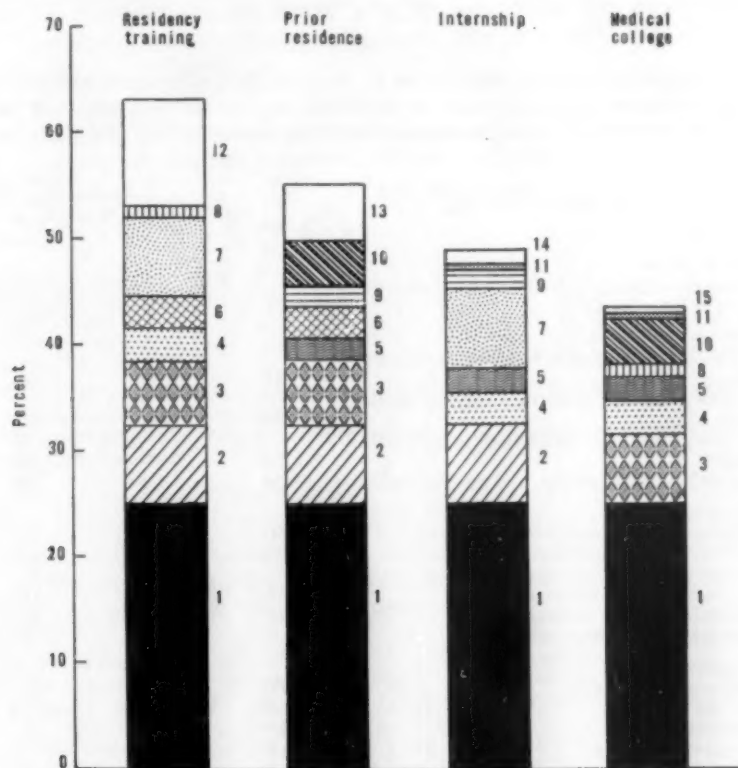


CHART 2.—Per cent of medical college graduates in private practice in the same state as that of residency training, prior residence, internship, and medical college: 1950 class.

1930 the proportion of graduates in communities of 5,000-24,999 has generally increased, resulting in increased medical service in the smaller communities at the expense of the larger centers of population.

The proportions of 1950 graduates in private practice in the various sizes of community may be compared with the proportions of the total population located in these communities:

Size of community	Per cent of 1950 medical graduates	Per cent of 1950 total population
All sizes:	100	100
500,000 and over	18	18
100,000-499,999	20	12
25,000-99,999	20	12
5,000-24,999	23	13
Under 5,000	19	45

For each size of community, except that under 5,000 population, the proportion of

1950 medical college graduates was as large or larger than the proportion of the total population. The smallest communities received less than half the proportion of 1950 graduates than they had of the total population.

The proportions of graduates practicing in communities of different sizes vary widely among the individual medical colleges (Appendix Table 15). Seven medical colleges (Alabama, Emory, Georgia, Bowman Gray, South Carolina, Utah, and the University of Virginia) had no 1950 graduates in private practice in cities of 500,000 or more population, whereas six medical colleges (Howard, Chicago Medical School, Maryland, Wayne, Western Reserve, and Hahnemann) had 40 per cent or more of their graduates practicing in cities of this size. At the other end of the scale, six medical colleges (Howard,

TABLE 11

NUMBER OF MEDICAL COLLEGE GRADUATES IN PRIVATE PRACTICE WITH RESIDENCY TRAINING, BY RELATIONSHIP BETWEEN PLACE OF PRACTICE AND PLACES OF RESIDENCY TRAINING, PRIOR RESIDENCE, INTERNSHIP, AND MEDICAL COLLEGE: 1945 AND 1950 CLASSES

PLACE OF PRACTICE THE SAME AS:	1945		1950	
	Same city	Same state	Same city	Same state
Total*:	2,465	2,465	2,353	2,353
All four other places:				
1. Residency training, prior residence, internship, and medical college	177	570	187	596
Three other places:				
2. Residency training, prior residence, and internship	57	137	66	165
3. Residency training, prior residence, and medical college	59	208	48	148
4. Residency training, internship, and medical college	74	55	70	75
5. Prior residence, internship, and medical college	34	90	25	52
Two other places:				
6. Residency training and prior residence	56	88	34	64
7. Residency training and internship	94	124	116	179
8. Residency training and medical college	56	33	35	27
9. Prior residence and internship	38	55	14	44
10. Prior residence and medical college	28	100	25	102
11. Internship and medical college	8	5	7	6
One other place:				
12. Residency training only	177	229	142	230
13. Prior residence only	265	171	217	130
14. Internship only	43	42	45	32
15. Medical college only	17	15	12	16
Practicing in a different place	1,282	543	1,310	487

\* Excludes those graduates with places not reported.

Washington University, Rochester, State University of New York at New York, Western Reserve, and Meharry) had less than 10 per cent of their graduates practicing in communities of less than 5,000 population.

One of the factors that makes small communities more attractive to physicians is the presence of a hospital. Since its inception in 1946, the Hospital Survey and Construction (Hill-Burton) Program has been instrumental in securing hospitals for many small communities. Under this program, over 1,100 projects encompassing about 35,000 beds have been completed in communities with less than 5,000 population (10).

A recent survey of 42 hospitals in Georgia constructed under the Hill-Burton Program showed that these new hospitals were successful in attracting physicians to their communities (17). Furthermore, the survey showed that a hospital placed in a rural com-

munity was a more effective agent in attracting physicians than a hospital placed in a larger city or town.

The distribution of medical college graduates in different methods of private practice varied somewhat by size of community. Graduates in individual practice were fairly uniformly distributed among the various sizes of community (Table 13). For graduates in partnership and group practice, the proportion in cities of 500,000 and over was considerably lower than for the other sizes of community.

Table 14 shows, for the last four classes studied, the distribution of graduates in each type of practice by size of community of practice. The highest proportion of graduates in general practice was in the communities of under 5,000 population and the next highest proportion in cities of 5,000-24,999 population for each of the four classes. The proportion of graduates in gen-

TABLE 12

PER CENT DISTRIBUTION OF MEDICAL COLLEGE GRADUATES IN PRIVATE PRACTICE, BY SIZE OF COMMUNITY OF PRACTICE: 1930-1950 CLASSES

SIZE OF COMMUNITY OF PRACTICE*	YEAR OF GRADUATION				
	1930	1935	1940	1945	1950
All sizes:	100.0	100.0	100.0	100.0	100.0
500,000 and over	28.9	25.9	24.4	19.7	17.7
100,000-499,999	16.1	21.0	21.6	23.3	19.8
25,000-99,999	12.5	19.2	23.1	21.9	19.9
5,000-24,999	16.8	18.5	17.6	21.3	23.0
Under 5,000	25.7	15.4	13.3	13.8	19.6

\* For 1930 graduates, communities were classified by 1930 population; for 1935-1950 graduates, by 1950 population.

See Appendix Table 15 for distribution by size of community for 1950 graduates of each medical college.

TABLE 13

PER CENT DISTRIBUTION OF MEDICAL COLLEGE GRADUATES IN PRIVATE PRACTICE, BY SIZE OF COMMUNITY AND METHOD OF PRACTICE: 1950 CLASS

SIZE OF COMMUNITY OF PRACTICE	METHOD OF PRACTICE			
	INDIVIDUAL	Total	Partnership and group Partnership	Group
All sizes:	100.0	100.0	100.0	100.0
500,000 and over	19.8	13.8	12.1	17.2
100,000-499,999	19.1	21.1	23.2	17.0
25,000-99,999	18.7	22.2	20.9	24.7
5,000-24,999	22.8	23.2	20.7	28.0
Under 5,000	19.6	19.7	23.1	13.1

eral practice in the smallest communities has generally increased from the 1935 to the 1950 classes. This increase has been accompanied by a marked decline in the proportion in cities of 500,000 and over.

The trends of graduates giving special attention to a specialty are similar to those for general practitioners although not quite so consistent.

For graduates who have limited practice to a specialty, the proportion in cities of 500,000 and over has shown a generally decreasing trend, whereas the proportions in the two smallest sizes of community have generally increased between the 1935 and 1950 classes. For the 1950 graduates, limited specialists were quite evenly distributed among the various sizes of community, except for the smallest communities. If this trend toward more even distribution of lim-

ited specialists in communities of all sizes continues, it will be a significant factor in the quality of medical service available throughout the nation in the future.

As was shown in Table 7, the proportion of graduates who have limited their practice to a specialty declined between the 1945 and 1950 classes. This was not true for those graduates practicing in cities of 500,000 and over:

Year of graduation	Per cent of graduates in cities of 500,000 and over who are limited specialists
1935	66.2
1940	75.6
1945	82.9
1950	84.6

See Appendix Table 17 for the corresponding data for each city of 500,000 or more.

TABLE 14  
PER CENT DISTRIBUTION OF MEDICAL COLLEGE GRADUATES IN PRIVATE PRACTICE IN DIFFERENT TYPES OF PRACTICE, BY SIZE OF COMMUNITY OF PRACTICE: 1935-1950 CLASSES

TYPE OF PRACTICE AND SIZE OF COMMUNITY OF PRACTICE	YEAR OF GRADUATION			
	1935	1940	1945	1950
General practice:				
All sizes*:	100.0	100.0	100.0	100.0
500,000 and over	18.6	14.6	10.1	6.6
100,000-499,999	12.2	13.2	10.9	12.3
25,000-99,999	13.4	16.2	10.4	11.0
5,000-24,999	22.3	24.1	27.5	27.3
Under 5,000	33.5	31.9	41.1	42.8
Special attention to a specialty:				
All sizes*:	100.0	100.0	100.0	100.0
500,000 and over	17.1	15.1	14.8	9.1
100,000-499,999	14.2	12.6	11.0	11.8
25,000-99,999	17.5	20.0	19.0	15.2
5,000-24,999	28.8	29.6	29.0	29.7
Under 5,000	22.4	22.7	26.2	34.2
Limited to a specialty:				
All sizes*:	100.0	100.0	100.0	100.0
500,000 and over	33.4	31.0	23.7	24.3
100,000-499,999	28.8	27.5	28.3	24.5
25,000-99,999	23.2	26.9	26.3	24.8
5,000-24,999	12.3	12.0	18.4	20.0
Under 5,000	2.3	2.6	3.3	6.4

\* Excludes twelve graduates practicing outside the United States and three whose size of community of practice was unknown.

See Appendix Table 16 for number of graduates in private practice by type of practice and size of community of practice for the 1950 class.



Medical college graduates tend to practice in communities of the same size as that of their prior residence. Two-thirds of the graduates practicing in cities of 500,000 and over lived in cities of such size before they entered medical college (Appendix Table 18). For the four smaller sizes of communities, the corresponding figure varied from one-fourth to almost one-half.

#### PLACE OF PRIOR RESIDENCE

##### *Relation to location of medical college.—*

The public medical colleges drew 82 per cent of their graduates from the state in which the medical college is located (Appendix Table 19). The corresponding figure for the private medical colleges was 48 per cent. This disparity is largely the result of differences in admission policies. Most public medical colleges severely restrict the number of out-of-state residents who may be admitted. On the other hand, certain private medical colleges, such as Yale, Johns Hopkins, Harvard, and Duke have definite policies of securing broad geographic representation among their students. Other private medical colleges attract students primarily from the state in which the college is located (Southern California, Stanford, Buffalo, Pittsburgh, and Baylor). The medical colleges that serve special groups (Howard and Meharry for Negroes and Woman's) draw students from a wide area. Three of the Jesuit medical colleges (Georgetown, St. Louis, and Creighton) draw comparatively few students from the same general location as the medical college.

In the section of this report on the relation between state of practice and location of medical college, it was found that the public medical colleges as a group contributed a higher proportion of private practitioners to their own states than did the private medical colleges. When state of prior residence is also taken into consideration, a rather interesting finding becomes apparent. Confining the analysis to 1950 graduates in private practice, the following was found for the graduates of the public and private medical colleges:

Per cent of 1950 graduates in private practice with:	Public medical colleges	Private medical colleges
Prior residence in same state as medical college	81*	48
Practice in same state as medical college	55	38
Difference	26	10

\* This figure differs from that in Appendix Table 19, which is based on total graduates of public medical colleges and not just on those in private practice.

The proportions of graduates practicing in the same state as the medical college are based on the total graduates in private practice and not on only those graduates whose prior residence was in the same state. The differences shown reflect the net results of the loss of prior residents who are practicing elsewhere and of the gain of practitioners whose prior residence was outside the state. The private medical colleges have a net loss of only 10 per cent as compared with 26 per cent net loss for the public medical colleges. In other words, the private medical colleges percentagewise contributed more private practitioners to their own states in relation to the number of graduates drawn from their own states than did the public medical colleges (with restrictive geographic admission policies).

##### *Size of community of prior residence.—*

Twelve medical colleges drew over half their 1950 graduates from cities of 500,000 and over (Appendix Table 20). In contrast, nine medical colleges had no graduates from cities of such size. Eleven medical colleges drew 30 per cent or more of their graduates from communities of less than 5,000. Howard and Chicago Medical School drew no graduates from these small communities.

The distribution by size of community of prior residence of medical college graduates who have limited their practice to a specialty differs greatly from those for general practitioners and for graduates giving special attention to a specialty (Table 15). Almost one-third of the graduates who have limited their practice lived in cities of 500,000 and over before entering medical college as compared with less than one-fifth of the other two groups. The proportions

who came from communities of medium size do not differ very widely among the graduates with the three types of practice. The proportion of general practitioners from small communities (under 5,000 population) is double that for graduates limiting their practice to a specialty.

For each size of community of prior residence, about two out of five of the 1950 graduates were practicing in the same size community (Appendix Table 21). Twelve per cent of the graduates from cities of 500,000 and over were practicing in communities of less than 5,000, while only 7 per cent of those who came from the small communities were practicing in the large cities.

#### GRADUATE TRAINING

Less than 1 per cent of the graduates of each of the classes from 1935 to 1950 failed to take internship training. The handful of graduates who did not take this training consisted of women who have never been in practice and of graduates whose practice does not require internship training.

The over-all proportion of graduates with

residency training of any duration increased for the 1935, 1940, and 1945 classes but showed a slight decline for the 1950 class (Table 16). This decline is largely due to the decline in residency training among those giving special attention to a specialty.

For each of the four classes studied, 65-70 per cent of the graduates in general practice had no residency training. The American Medical Association through its Council on Medical Education and Hospitals, the Association of American Medical Colleges, and the Academy of General Practice have recently agreed that 1 year of hospital training after graduation (i.e., internship) provides inadequate preparation for the practice of medicine (1). As more medical school graduates become aware of this agreement more of those entering general practice will probably take more training than 1 year of hospital internship.

The proportion of graduates giving special attention to a specialty who have had some residency training varied between 50 and 60 per cent for the four classes.

For those graduates of 1945 and 1950

TABLE 15

PER CENT DISTRIBUTION OF MEDICAL COLLEGE GRADUATES IN PRIVATE PRACTICE, BY SIZE OF COMMUNITY OF PRIOR RESIDENCE AND TYPE OF PRACTICE: 1950 CLASS

SIZE OF COMMUNITY OF PRIOR RESIDENCE	TOTAL	General practice	TYPE OF PRACTICE Special attention to a specialty	Limited to a specialty
Number of graduates	3,311	1,002	267	2,042
All sizes:	100.0	100.0	100.0	100.0
500,000 and over	26.3	14.8	18.0	32.9
100,000-499,999	22.6	25.7	20.3	21.3
25,000-99,999	17.8	15.3	21.1	18.7
5,000-24,999	15.1	16.6	19.1	13.8
Under 5,000	18.2	27.6	21.5	13.3

TABLE 16

PER CENT OF MEDICAL COLLEGE GRADUATES WITH RESIDENCY TRAINING, BY TYPE OF PRACTICE: 1935-1950 CLASSES

TYPE OF PRACTICE	1935	1940	1945	1950
Total:	64.2	76.2	81.8	77.7
General practice	29.1	34.8	29.3	30.2
Special attention to a specialty	48.8	60.4	61.4	57.0
Limited to a specialty	84.3	93.0	96.8	97.0

limiting practice to a specialty, only three out of 100 failed to take residency training. Among the 1950 graduates who have limited practice to a specialty 93 per cent took residencies in their specialties, and 4 per cent took other residency training. A few (1.1 per cent) with no residency training had other training in their specialty, principally training in a school of public health. A negligible number (0.2 per cent) had only a straight internship in their specialty. About 2 per cent of the limited specialists reported no graduate training in their specialty.

For the last four classes studied, Table 17 shows the median years of residency training by type of practice. For all types of practice

in this class with residency training completed such training without interruption. By the time the 1940 graduates had completed a year of internship training, the United States was at war. Only 42 per cent of these graduates completed their residency training without interruption. Most of the 1945 graduates had periods of obligated military service after completion of internships, and only 13 per cent completed residency training with no interruption. Since nearly half the 1950 graduates served in the armed forces before entering medical college, obligated military service did not seriously interrupt the graduate training of this class, and 60 per cent of the graduates with

TABLE 17  
MEDIAN YEARS OF RESIDENCY TRAINING COMPLETED BY MEDICAL COLLEGE  
GRADUATES WITH SUCH TRAINING, BY TYPE OF PRACTICE:  
1935-1950 CLASSES

TYPE OF PRACTICE	YEAR OF GRADUATION			
	1935	1940	1945	1950
Total:	2.6	2.7	3.4	3.4
General practice	1.7	1.6	1.6	1.5
Special attention to a specialty	1.9	1.9	2.0	1.9
Limited to a specialty*	2.9	2.9	3.5	3.6

\* Excludes graduates in residency training at time of the survey.

combined, the trend has been for longer periods of training. However, for general practitioners and for those giving special attention to a specialty there was a slight decrease between the 1945 and 1950 classes. The increased requirements of the American Specialty Boards for graduate training and the growing recognition of the value of such training since World War II are reflected in the sharp increase in the average length of residency training among limited specialists between the 1940 and 1945 classes.

Most graduates who take residency training do so immediately after finishing internship training. Some physicians decide to become specialists after a period of practice and take delayed residencies in preparation for this change in type of practice. Of the last four classes surveyed only 1935 graduates had the opportunity to follow the normal pattern, and almost 80 per cent of those

residency training completed that training with no interruption.

#### SUMMARY

The 1950 class had the oldest average age at graduation of any class surveyed.

Over one-third of the 1950 graduates in private practice were in partnership and group practice.

The proportion of graduates with full-time salaried positions who were in teaching and/or research doubled between 1935 and 1950.

The proportion of graduates giving special attention to a specialty has declined.

The proportion of graduates limiting practice to a specialty decreased with increased age at graduation.

Although the proportion of graduates limiting practice to a specialty after increasing since 1930 showed a decline between

1945 and 1950, adjustment of the data for age wipes out this decline.

Only a few 1950 graduates in nonprivate practice were in general practice or giving special attention to a specialty.

Among 1950 graduates more than one-third of those who have limited their practice to a specialty reported that they had decided upon the field of specialization before graduation from medical college.

Internal medicine and surgery were the most frequent choices among limited specialists.

In relation to population, low per capita income states tended to receive less than their proportionate share of 1950 medical college graduates, whereas high per capita income states tended to receive their share or more of graduates.

The public medical colleges as a group have contributed higher proportions of private practitioners to their own states than have the private medical colleges for each class studied since 1930. However, in relation to the number of graduates whose prior residence was in the same state as the medical college, the private medical colleges have retained higher proportions of graduates in their own states than have the public medical colleges.

The proportion of medical college graduates practicing in the same city, state, and division as their prior residence has steadily declined.

The state in which residency training took place is the most important factor studied in determining state of practice among 1950 graduates.

The percentage of graduates practicing in cities of 500,000 and over has decreased, and the percentage practicing in communities under 25,000 has increased among the last few classes studied.

The highest proportion of general practitioners was in the smallest communities.

For 1950 graduates, limited specialists were evenly distributed among all but the smallest size of community.

The proportion of limited specialists

among those practicing in cities of 500,000 and over has increased steadily.

The public medical colleges drew 82 per cent of their 1950 graduates from the state in which the medical college is located; the corresponding figure for the private medical colleges was 48 per cent.

Two 1950 graduates out of five were practicing in a community the same size as that in which they lived before entering medical college.

Almost 80 per cent of the 1950 graduates have had some residency training. For graduates limiting their practice to a specialty, the corresponding figure was 97 per cent and for general practitioners, 30 per cent.

The average length of residency training increased steadily between the 1935 and 1950 classes.

#### REFERENCES

1. AMERICAN MEDICAL ASSOCIATION, COMMITTEE ON PREPARATION FOR GENERAL PRACTICE. Report to the House of Delegates. *J.A.M.A.*, 170:681-84, 1959.
2. CONSULTANTS ON MEDICAL RESEARCH TO THE SUBCOMMITTEE ON DEPARTMENTS OF LABOR AND HEALTH, EDUCATION, AND WELFARE OF THE COMMITTEE ON APPROPRIATIONS, UNITED STATES SENATE, 86TH CONGRESS, 2D SESSION. Report: Federal Support of Medical Research. Washington: U.S. Government Printing Office, 1960.
3. JOHNSON, V. Forty-fifth Annual Report on Medical Education in the United States and Canada. *J.A.M.A.*, 129:39-71, 1945.
4. JORDAN, E. P. (ed.). *The Physician and Group Practice*. Chicago: The Year Book Publishers, Inc., 1958.
5. KENDALL, P., and SELVIN, H. C. Tendencies toward Specialization in Medical Training. In: R. K. MERTON *et al.* (eds.), *The Student-Physician*, pp. 153-74. Cambridge: Harvard University Press for the Commonwealth Fund, 1957.
6. NYBERG, C. E. Trends in General Practice. *G P*, 19:163-66, 1959.
7. PANKRATZ, D. S., and DAVIS, J. C. A Review of Mississippi's Medical Education Program. *J. M. Educ.*, 35:352-56, 1960.

8. SURGEON GENERAL'S CONSULTANT GROUP ON MEDICAL EDUCATION. Report: Physicians for a Growing America. Public Health Service Pub. No. 709. Washington: U.S. Government Printing Office, 1959.
9. TURNER, E. L.; WIGGINS, W. S.; and TIPNER, A. Medical Education in the United States and Canada. *J.A.M.A.*, **159**:563-610, 1955.
10. U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, PUBLIC HEALTH SERVICE. The Hospital and Medical Facilities Construction Program Under Title VI of the Public Health Service Act. Semiannual Analysis of Projects Approved for Federal Aid as of December 31, 1959. The Department, 1959.
11. WEISKOTTEN, H. G. A Study of Present Tendencies in Medical Practice. *Bull. A. Am. M. Coll.*, **3**:130-44, 1928.
12. ———. Tendencies in Medical Practice. *J.A.M.M. Coll.*, **7**:65-85, 1932.
13. ———. Trends in Medical Practice. *Ibid.*, **12**:321-56, 1937.
14. WEISKOTTEN, H. G., and ALTENDERFER, M. E. Trends in Medical Practice. *J. M. Educ.*, **27**:1-41, September (Part II), 1952.
15. ———. Trends in Medical Practice. *Ibid.*, **31**:1-92, July (Part II), 1956.
16. WIGGINS, W. S.; SHEPHERD, G. R.; HINMAN, J.; and TIPNER, A. Medical Education in the United States and Canada. *J.A.M.A.*, **171**:1507-80, 1959.
17. WILLIAMS, R. C., and UZZELL, W. E. Attracting Physicians to Smaller Communities. *Hospitals*, **34**:49-51, 1960.



APPENDIX TABLE 1

QUESTIONNAIRES RETURNED BY GRADUATES OF EACH MEDICAL COLLEGE: TOTAL, 1915-1945, AND 1950 CLASSES

MEDICAL COLLEGE	TOTAL			1915-1945			1950		
	Sent	Returned		Sent	Returned		Sent	Returned	
		Number	Per cent		Number	Per cent		Number	Per cent
Total:	34,174	25,377	74.3	28,783	21,110	73.3	5,391	4,267	79.2
Alabama	50	40	80.0	*	...	...	50	40	80.0
Arkansas	301	212	70.4	236	163	69.1	65	49	75.4
California, San Francisco	380	303	79.7	304	238	78.3	76	65	85.5
Medical Evangelists	518	374	72.2	441	311	70.5	77	63	81.8
Southern California	190	146	76.8	128	98	76.6	62	48	77.4
Stanford	323	251	77.7	268	208	77.6	55	43	78.2
Colorado	306	245	80.1	244	196	80.3	62	49	79.0
Yale	314	257	81.8	272	222	81.6	42	35	83.3
Georgetown	530	340	64.2	454	285	62.8	76	55	72.4
George Washington	397	291	73.3	325	233	71.7	72	58	80.6
Howard	382	208	54.5	324	173	53.4	58	35	60.3
Emory	492	365	74.2	439	324	73.8	53	41	77.4
Georgia	282	199	70.6	209	145	69.4	73	54	74.0
Chicago Medical School	221	122	55.2	187	93	49.7	34	29	85.3
Illinois	991	682	68.8	842	564	67.0	149	118	79.2
Northwestern	910	687	75.5	727	542	74.6	183	145	79.2
Rush	707	517	73.1	707	517	73.1	*	...	...
Stitch	451	290	64.3	391	243	62.1	60	47	78.3
University of Chicago	164	134	81.7	108	89	82.4	56	45	80.4
Indiana	639	488	76.4	550	420	76.4	89	68	76.4
Iowa	529	432	81.7	460	379	82.4	69	53	76.8
Kansas	398	300	75.4	319	234	73.4	79	66	83.5
Louisville	556	416	74.8	466	344	73.8	90	72	80.0
Louisiana State	257	172	66.9	194	120	61.9	63	52	82.5
Tulane	828	598	72.2	714	510	71.4	114	88	77.2
Johns Hopkins	602	486	80.7	535	435	81.3	67	51	76.1
Maryland	656	472	72.0	576	408	70.8	80	64	80.0
Boston University	340	250	73.5	286	206	72.0	54	44	81.5
Harvard	955	787	82.4	829	676	81.5	126	111	88.1
Tufts	753	508	67.5	655	439	67.0	98	69	70.4
Michigan	874	684	78.3	784	606	77.3	90	78	86.7
Wayne	402	286	71.1	346	247	71.4	56	39	69.6
Minnesota	728	571	78.4	634	492	77.6	79	79	84.0
St. Louis	749	545	72.8	648	461	71.1	101	84	83.2
Washington University	581	450	77.5	499	386	77.4	82	64	78.0

APPENDIX TABLE 1—Continued

MEDICAL COLLEGE	TOTAL			1915-1945				YEAR OF GRADUATION				1950	
	Sent	Returned		Sent	Returned		Per cent	Sent	Returned		Per cent	Number	Per cent
		Number	Per cent		Number	Per cent			Number	Per cent			
Creighton	378	280	74.1	319	235	73.7	59	45	76.3				
Nebraska	517	415	80.3	441	351	79.6	76	64	84.2				
Albany	247	195	78.9	198	154	77.8	49	41	83.7				
Buffalo	485	366	75.5	414	305	73.7	71	61	85.9				
Columbia	757	601	79.4	662	519	78.4	95	82	86.3				
Cornell	459	342	74.5	387	287	74.2	72	55	76.4				
New York Medical College	412	254	61.7	318	189	59.4	94	65	69.1				
New York University	891	658	73.8	781	571	73.1	110	87	79.1				
Rochester	235	205	87.2	170	147	86.5	65	58	89.2				
S.U.N.Y., New York	695	497	71.5	606	426	70.3	89	71	79.8				
S.U.N.Y., Syracuse	299	271	90.6	264	237	89.8	35	34	97.1				
Bowman Gray	79	61	77.2	39	29	74.4	40	32	80.0				
Duke	247	186	75.3	176	128	72.7	71	58	81.7				
Cincinnati	411	306	74.5	339	248	73.2	72	58	80.6				
Ohio State	498	373	74.9	429	322	75.1	69	51	73.9				
Western Reserve	477	384	80.5	389	316	81.2	88	68	77.3				
Oklahoma	355	264	74.4	285	204	71.6	70	60	85.7				
Oregon	337	268	79.5	281	222	79.0	56	46	82.1				
Hahnemann	594	402	67.7	524	345	65.8	70	57	81.4				
Jefferson	1,119	856	76.5	974	746	76.6	145	110	75.9				
Pennsylvania	942	746	79.2	832	650	78.1	110	96	87.3				
Pittsburgh	403	319	79.2	334	263	78.7	69	56	81.2				
Temple	518	353	68.1	425	288	67.8	93	65	69.9				
Woman's	186	122	65.6	154	96	62.3	32	26	81.2				
South Carolina	292	220	75.3	236	176	74.6	56	44	78.6				
Meharry	357	179	50.1	304	146	48.0	53	33	62.3				
Tennessee	679	469	69.1	536	370	69.0	143	99	69.2				
Vanderbilt	401	300	74.8	356	266	74.7	45	34	75.6				
Baylor	415	304	73.3	343	246	71.7	72	58	80.6				
Southwestern	101	69	68.3	48	33	68.8	53	36	67.9				
Texas	565	430	76.1	471	356	75.6	94	74	78.7				
Utah	83	70	84.3	38	31	81.6	45	39	86.7				
Vermont	257	199	77.4	224	172	76.8	33	27	81.8				
Medical College of Virginia	583	438	75.1	494	365	73.9	89	73	82.0				
University of Virginia	393	304	77.4	337	257	76.3	56	47	83.9				
University of Washington	43	37	86.0	*	..	..	..	43	86.0				
Marquette	428	313	73.1	345	249	72.2	83	64	77.1				
Wisconsin	280	213	76.1	209	158	75.6	71	55	77.5				

\* Medical college not in operation or had no graduating class.

APPENDIX TABLE 2  
NUMBER OF MEDICAL COLLEGE GRADUATES, BY AGE AT  
GRADUATION: 1935-1950 CLASSES

AGE AT GRADUATION	YEAR OF GRADUATION			
	1935	1940	1945	1950
All ages:	3,186	3,534	4,225	4,267
Under 24	198	160	713	331
24	479	490	1,404	546
25	728	892	1,126	413
26	659	874	347	380
27	435	426	198	375
28	215	230	121	409
29	154	156	88	415
30	99	85	54	383
31	58	66	38	276
32	43	49	31	233
33	30	36	28	165
34 and over	87	70	77	341
Not reported	1	0	0	0

APPENDIX TABLE 3  
PER CENT OF GRADUATES OF EACH MEDICAL COLLEGE IN PRIVATE PRACTICE.  
1930-1950 CLASSES

MEDICAL COLLEGE	YEAR OF GRADUATION				
	1930	1935	1940	1945	1950
Total:	77.6	82.3	77.4	75.2	77.6
Alabama	*	*	*	*	95.0
Arkansas	45.5†	75.0†	75.6	90.0	87.8
California, San Francisco	83.8	75.7	75.0	64.9	69.2
Medical Evangelists	64.3	70.0	72.6	68.9	68.3
Southern California	*	78.3†	77.1	87.5	75.0
Stanford	81.4	83.3	82.5	75.0	76.7
Colorado	55.6	80.6	70.0	68.3	75.5
Yale	60.5	62.5	59.5	73.5	48.6
Georgetown	95.1	91.1	85.0	83.3	70.9
George Washington	78.1	84.1	61.1	68.6	81.0
Howard	91.2	95.0†	89.5†	60.0	62.9
Emory	72.2	91.4	81.1	86.7	75.6
Georgia	64.0	90.5†	81.2†	86.0	87.0
Chicago Medical School	‡	90.0	81.8	76.7	86.2
Illinois	74.7	82.4	67.6	76.9	81.4
Northwestern	74.2	78.6	81.2	80.9	71.0
Rush	68.4	89.4	79.7	*	*
Stritch	89.8	85.4	82.0	87.5	85.1
University of Chicago	*	68.8†	53.8	66.0	55.6
Indiana	68.8	86.9	80.3	85.9	88.2
Iowa	73.2	78.3	85.2	71.9	81.1
Kansas	75.7	85.7	84.8	78.7	69.7
Louisville	80.6	82.0	81.2	73.7	86.1
Louisiana State	*	95.8†	88.1	75.9	84.6
Tulane	77.1	76.6	83.1	81.8	86.4

\* Medical college not in operation or had no graduating class.

† Per cent based on less than 25 graduates.

‡ Not included in study for this year.

APPENDIX TABLE 3—Continued

MEDICAL COLLEGE	YEAR OF GRADUATION				
	1930	1935	1940	1945	1950
Johns Hopkins	53.2	61.9	69.8	53.3	72.5
Maryland	85.5	86.4	77.3	78.3	84.4
Boston University	89.5	76.5	77.4	62.2	77.3
Harvard	65.5	83.5	67.8	59.6	64.9
Tufts	82.7	83.9	80.0	90.6	89.9
Michigan	78.6	75.7	68.9	67.0	78.2
Wayne	87.5	81.4	75.7	68.8	84.6
Minnesota	75.8	84.1	77.1	69.7	62.0
St. Louis	80.2	84.7	74.2	72.8	85.7
Washington Univer- sity	72.4	85.0	78.8	77.8	76.6
Creighton	80.0	87.8	90.0	82.9	84.4
Nebraska	69.5	77.2	78.0	75.0	89.1
Albany	100.0†	87.0	82.6†	66.7	73.2
Buffalo	87.5	78.3	77.8	75.4	82.0
Columbia	86.3	87.3	66.2	64.8	68.3
Cornell	76.2	84.8	71.2	68.2	78.2
New York Medical College	90.4	91.7	87.5	75.5	84.6
New York University	96.6	90.5	75.0	74.4	77.0
Rochester	81.8†	73.0	68.3	51.1	63.8
S.U.N.Y., New York	97.2	83.0	77.6	76.1	74.6
S.U.N.Y., Syracuse	92.3	91.9	89.7	82.9	61.8
Bowman Gray	*	*	*	82.8	71.9
Duke	*	86.2	67.4	71.7	74.1
Cincinnati	74.4	83.3	80.4	85.0	81.0
Ohio State	78.7	81.5	72.5	83.0	78.4
Western Reserve	71.2	88.1	84.1	72.2	73.5
Oklahoma	70.7	86.5	82.4	81.6	83.3
Oregon	68.6	75.0	77.8	78.9	82.6
Hahnemann	89.4	86.0	82.1	84.1	71.9
Jefferson	80.2	89.5	86.7	80.4	86.4
Pennsylvania	79.4	81.4	78.6	71.2	68.8
Pittsburgh	88.9	87.8	86.2	71.4	78.6
Temple	88.6	86.3	79.7	76.6	72.3
Woman's	70.0†	76.5†	75.0†	60.0†	57.7
South Carolina	77.8	80.8	93.3	69.4	72.7
Meharry	92.0	76.9†	100.0†	56.8	87.9
Tennessee	73.3	88.2	75.8	86.5	86.9
Vanderbilt	54.5	64.7	79.1	88.6	64.7
Baylor	80.3	89.1	88.1	82.8	79.3
Southwestern	*	*	*	75.8	88.9
Texas	81.3	87.8	83.6	77.9	86.5
Utah	*	*	*	74.2	79.5
Vermont	90.5†	73.9†	72.4	50.0†	74.1
Medical College of Virginia	69.3	73.6	70.7	80.6	86.3
University of Virginia	65.9	80.0	68.3	82.6	74.5
University of Wash- ington	*	*	*	*	75.7
Marquette	85.7	86.5	77.5	82.5	87.5
Wisconsin	71.4	84.6	81.6	69.8	72.7

APPENDIX TABLE 4

PER CENT OF MEDICAL COLLEGE GRADUATES IN PRIVATE PRACTICE IN  
EACH GEOGRAPHIC DIVISION AND STATE WHO ARE IN PARTNERSHIP  
AND GROUP PRACTICE: 1950 CLASS

DIVISION AND STATE OF PRACTICE	NO. GRADUATES IN PRIVATE PRACTICE	PER CENT OF GRADUATES IN PRIVATE PRACTICE:		
		Partnership and group practice	Partnership practice	Group practice
United States:	3,266*	34.5	22.8	11.7
New England:	200	20.0	13.5	6.5
Connecticut	62	25.8	21.0	4.8
Maine	11	36.4	18.2	18.2
Massachusetts	100	15.0	8.0	7.0
New Hampshire	10	2.0	1.0	1.0
Rhode Island	11	18.2	18.2	.....
Vermont	6	16.7	16.7	.....
Middle Atlantic:	542	20.9	13.5	7.4
New Jersey	96	14.6	11.5	3.1
New York	289	18.0	10.4	7.6
Pennsylvania	157	30.0	20.4	9.6
South Atlantic:	454	29.5	22.9	6.6
Delaware	8	50.0	37.5	12.5
District of Columbia	19	21.0	10.5	10.5
Florida	121	27.2	19.8	7.4
Georgia	63	36.5	30.2	6.3
Maryland	48	10.4	10.4	.....
North Carolina	63	33.3	25.4	7.9
South Carolina	33	27.3	27.3	.....
Virginia	76	36.8	27.6	9.2
West Virginia	23	30.4	21.7	8.7
East South Central:	212	38.7	27.4	11.3
Alabama	44	54.6	43.2	11.4
Kentucky	53	30.2	18.9	11.3
Mississippi	41	26.9	9.8	17.1
Tennessee	74	41.9	33.8	8.1
West South Central:	320	41.3	26.9	14.4
Arkansas	25	52.0	40.0	12.0
Louisiana	61	49.2	27.9	21.3
Oklahoma	49	42.8	26.5	16.3
Texas	185	36.8	24.9	11.9
East North Central:	547	36.0	23.8	12.2
Illinois	142	38.0	22.5	15.5
Indiana	64	43.7	28.1	15.6
Michigan	116	37.0	26.7	10.3
Ohio	158	27.9	22.2	5.7
Wisconsin	67	41.8	20.9	20.9
West North Central:	275	56.7	38.9	17.8
Iowa	40	60.0	47.5	12.5
Kansas	37	45.9	27.0	18.9
Minnesota	71	77.5	45.1	32.4
Missouri	76	32.9	21.1	11.8
Nebraska	30	73.4	66.7	6.7
North Dakota	7	42.9	28.6	14.3
South Dakota	14	71.4	57.1	14.3

\* Excludes 45 graduates in private practice outside the United States.



APPENDIX TABLE 4—Continued

DIVISION AND STATE OF PRACTICE	NO. GRADUATES IN PRIVATE PRACTICE	PER CENT OF GRADUATES IN PRIVATE PRACTICE:		
		Partnership and group practice	Partnership practice	Group practice
Mountain:	151	40.4	29.8	10.6
Arizona	17	53.0	41.2	11.8
Colorado	58	39.6	29.3	10.3
Idaho	19	47.4	42.1	5.3
Montana	17	35.3	11.8	23.5
Nevada	4	50.0	50.0	....
New Mexico	17	23.5	17.6	5.9
Utah	11	27.3	18.2	9.1
Wyoming	8	62.5	50.0	12.5
Pacific:	565	37.8	20.5	17.3
California	440	35.5	18.2	17.3
Oregon	47	51.0	25.5	25.5
Washington	78	43.6	30.8	12.8

APPENDIX TABLE 5

NUMBER OF GRADUATES OF EACH MEDICAL COLLEGE, BY TYPE OF PRACTICE: 1950 CLASS

MEDICAL COLLEGE	TOTAL*	TYPE OF PRACTICE			
		General practice	Special attention to a specialty	Limited to a specialty	Not reported
Total:	4,225	1,032	305	2,856	32
Alabama	40	13	6	21	0
Arkansas	49	25	1	23	0
California, San Francisco	64	9	2	53	0
Medical Evangelists	63	24	7	31	1
Southern California	47	11	1	34	1
Stanford	42	8	1	33	0
Colorado	49	15	3	30	1
Yale	35	3	1	31	0
Georgetown	55	14	4	37	0
George Washington	58	13	3	41	1
Howard	35	5	6	24	0
Emory	41	8	5	28	0
Georgia	54	21	6	27	0
Chicago Medical School	29	8	1	20	0
Illinois	117	23	8	86	0
Northwestern	144	24	9	105	6
Stritch	47	13	1	33	0
University of Chicago	45	10	2	33	0
Indiana	68	25	4	38	1
Iowa	53	10	9	34	0
Kansas	66	17	6	43	0
Louisville	71	19	4	48	0
Louisiana State	52	21	8	23	0
Tulane	87	21	3	63	0
Johns Hopkins	51	2	5	44	0
Maryland	63	10	6	47	0
Boston University	44	3	3	37	1
Harvard	109	2	3	103	1
Tufts	68	13	4	51	0
Michigan	75	15	2	57	1

\* Excludes 42 graduates not in practice.

APPENDIX TABLE 5—Continued

MEDICAL COLLEGE	TOTAL*	TYPE OF PRACTICE			Not reported
		General practice	Special attention to a specialty	Limited to a specialty	
Wayne	39	11	6	21	1
Minnesota	78	20	8	50	0
St. Louis	83	22	5	56	0
Washington University	62	8	5	49	0
Creighton	44	10	4	30	0
Nebraska	64	34	7	23	0
Albany	39	9	3	27	0
Buffalo	61	14	0	47	0
Columbia	82	3	3	73	3
Cornell	55	6	2	47	0
New York Medical College	65	9	4	51	1
New York University	85	10	4	71	0
Rochester	58	4	4	49	1
S.U.N.Y., New York	70	4	1	65	0
S.U.N.Y., Syracuse	31	7	2	22	0
Bowman Gray	32	11	2	19	0
Duke	58	10	2	45	1
Cincinnati	57	13	8	34	2
Ohio State	51	18	5	28	0
Western Reserve	67	9	4	54	0
Oklahoma	59	23	8	28	0
Oregon	46	17	2	26	1
Hahnemann	57	20	2	35	0
Jefferson	110	20	13	76	1
Pennsylvania	95	15	4	74	2
Pittsburgh	56	18	4	34	0
Temple	64	20	7	36	1
Woman's	25	5	3	17	0
South Carolina	43	19	2	21	1
Meharry	33	15	5	13	0
Tennessee	97	41	12	44	0
Vanderbilt	32	4	2	26	0
Baylor	58	13	8	35	2
Southwestern	36	14	5	16	1
Texas	73	31	8	34	0
Utah	39	16	3	20	0
Vermont	26	6	1	19	0
Medical College of Virginia	73	28	4	41	0
University of Virginia	47	12	3	32	0
University of Washington	36	14	2	20	0
Marquette	64	31	3	30	0
Wisconsin	54	13	1	40	0

APPENDIX TABLE 6  
PER CENT OF MEDICAL COLLEGE GRADUATES IN GENERAL PRACTICE AND  
GIVING SPECIAL ATTENTION TO A SPECIALTY, BY AGE AT  
GRADUATION: 1935-1950 CLASSES

TYPE OF PRACTICE AND AGE AT GRADUATION	YEAR OF GRADUATION			
	1935	1940	1945	1950
General practice:				
All ages:	23.2	21.1	19.1	24.6
Under 24 years	15.2	11.4	13.8	13.5
24-28 years	22.6	19.9	18.9	17.5
29 years and over	30.3	31.8	33.7	34.9
Special attention to a specialty:				
All ages:	20.5	14.1	5.9	7.3
Under 24 years	14.7	12.7	4.0	3.4
24-28 years	19.6	13.4	6.0	6.3
29 years and over	27.8	18.9	9.3	9.2

APPENDIX TABLE 7  
NUMBER OF MEDICAL COLLEGE GRADUATES, BY METHOD AND TYPE OF PRACTICE:  
1950 CLASS

METHOD OF PRACTICE	TOTAL	TYPE OF PRACTICE			
		General practice	Special attention to a specialty	Limited to a specialty	Not reported
Total:	4,267	1,032	305	2,856	74
Private practice, total:	3,311	1,002	267	2,042	0
Individual	2,119	714	167	1,238	0
Partnership	757	223	64	470	0
Group	391	62	36	293	0
Not specified	44	3	0	41	0
Non-federal hospitals, total:	238	10	13	214	1
Resident, fellow	123	0	0	123	0
Mental, tuberculosis hospitals	27	0	2	25	0
Mission hospitals	17	4	11	2	0
All other	71	6	0	64	1
Teaching and/or research, total:	269	1	5	245	18
Medical college	234	0	4	221	9
Other educational institution	14	1	1	9	3
Research institution	21	0	0	15	6
Public health, total:	96	8	6	80	2
United States Public Health Service	29	0	4	23	2
State and local health depart- ments	58	6	2	50	0
Other	9	2	0	7	0
Federal government, total:	207	2	9	195	1
Armed forces*	103	2	7	93	1
Veterans Administration	101	0	2	99	0
Other	3	0	0	3	0
Industry	33	1	0	31	1
Insurance	7	0	0	4	3
Pharmaceutical company	8	0	1	3	4
All other	56	8	4	42	2
Not in practice	42	0	0	0	42

\* Includes Army, Navy, and Air Force.

APPENDIX TABLE 8

PER CENT DISTRIBUTION OF MEDICAL COLLEGE GRADUATES IN PRIVATE  
PRACTICE IN EACH GEOGRAPHIC DIVISION AND STATE, BY TYPE OF  
PRACTICE: 1950 CLASS

DIVISION AND STATE OF PRACTICE	TOTAL	General practice	TYPE OF PRACTICE Special attention to a specialty	Limited to a specialty
United States:	100.0	30.3	8.1	61.6
New England:	100.0	13.0	5.0	82.0
Connecticut	100.0	21.0	1.6	77.4
Maine*	100.0	9.1	....	90.9
Massachusetts	100.0	10.0	6.0	84.0
New Hampshire*	100.0	10.0	20.0	70.0
Rhode Island*	100.0	....	....	100.0
Vermont*	100.0	16.7	16.7	66.6
Middle Atlantic:	100.0	21.6	6.8	71.6
New Jersey	100.0	25.0	6.2	68.8
New York	100.0	14.5	4.9	80.6
Pennsylvania	100.0	32.5	10.8	56.7
South Atlantic:	100.0	34.6	9.7	55.7
Delaware*	100.0	75.0	12.5	12.5
District of Columbia*	100.0	....	....	100.0
Florida	100.0	23.1	12.4	64.5
Georgia	100.0	44.4	11.2	44.4
Maryland	100.0	20.8	14.6	64.6
North Carolina	100.0	34.9	6.4	58.7
South Carolina	100.0	57.6	15.1	27.3
Virginia	100.0	44.7	1.3	54.0
West Virginia*	100.0	43.5	17.4	39.1
East South Central:	100.0	37.3	10.8	51.9
Alabama	100.0	34.1	6.8	59.1
Kentucky	100.0	30.2	7.5	62.3
Mississippi	100.0	51.2	19.5	29.3
Tennessee	100.0	36.5	10.8	52.7
West South Central:	100.0	39.1	10.9	50.0
Arkansas	100.0	60.0	4.0	36.0
Louisiana	100.0	31.1	8.2	60.7
Oklahoma	100.0	49.0	14.3	36.7
Texas	100.0	36.2	11.9	51.9
East North Central:	100.0	30.4	7.1	62.5
Illinois	100.0	24.6	8.5	66.9
Indiana	100.0	42.2	4.7	53.1
Michigan	100.0	31.9	5.2	62.9
Ohio	100.0	27.8	9.5	62.7
Wisconsin	100.0	34.3	4.5	61.2
West North Central:	100.0	36.0	13.1	50.9
Iowa	100.0	27.5	22.5	50.0
Kansas	100.0	40.5	13.5	46.0
Minnesota	100.0	36.6	11.3	52.1
Missouri	100.0	25.0	9.2	65.8
Nebraska	100.0	56.7	13.3	30.0
North Dakota*	100.0	57.1	....	42.9
South Dakota*	100.0	50.0	21.4	28.6

\* Percentages based on less than 25 graduates in private practice.

APPENDIX TABLE 8—Continued

DIVISION AND STATE OF PRACTICE	TOTAL	General practice	TYPE OF PRACTICE Special attention to a specialty	Limited to a specialty
Mountain:	100.0	37.1	7.9	55.0
Arizona*	100.0	35.3	5.9	58.8
Colorado	100.0	24.1	6.9	69.0
Idaho*	100.0	73.7	10.5	15.8
Montana*	100.0	41.2	11.8	47.0
Nevada*	100.0	.....	.....	100.0
New Mexico*	100.0	35.3	5.9	58.8
Utah*	100.0	45.5	9.0	45.5
Wyoming*	100.0	50.0	12.5	37.5
Pacific:	100.0	29.2	5.0	65.8
California	100.0	25.0	4.5	70.5
Oregon	100.0	51.1	2.1	46.8
Washington	100.0	39.7	9.0	51.3

APPENDIX TABLE 9

PER CENT OF GRADUATES OF EACH MEDICAL COLLEGE WHO HAVE LIMITED PRACTICE  
TO A SPECIALTY: 1915-1950 CLASSES

MEDICAL COLLEGE	YEAR OF GRADUATION							
	1915	1920	1925	1930	1935	1940	1945	1950
Total*:	40.9	35.0	34.0	30.2	55.5	64.0	74.0	66.9
Alabama	†	†	†	†	†	†	†	52.5
Arkansas	27.3‡	46.7‡	23.8‡	27.3‡	79.2‡	44.4	57.5	46.9
California, San Francisco	60.0‡	46.7‡	28.6	27.0	54.1	77.5	84.2	81.5
Medical Evangelists	33.3‡	8.3‡	10.0	19.6	46.7	33.9	42.6	49.2
Southern California	†	†	†	†	78.3‡	71.4	75.0	70.8
Stanford	35.7‡	56.2‡	68.2‡	48.8	66.7	65.0	75.0	76.7
Colorado	42.9‡	40.0‡	42.3	33.3	54.8	72.5	78.0	61.2
Yale	71.4‡	31.2‡	48.6	69.8	65.6	86.5	85.7	88.6
Georgetown	47.6‡	22.2‡	34.5	16.4	37.8	56.7	75.0	67.3
George Washington	33.3‡	37.5‡	50.0	25.0	38.6	58.3	68.6	70.7
Howard	9.1‡	15.4‡	.....	8.8	10.0‡	10.5‡	54.3	68.6
Emory	33.7	37.5‡	32.7	19.4	42.9	64.9	84.4	68.3
Georgia	25.0‡	46.2‡	21.1‡	32.0	61.9‡	50.0‡	58.1	50.0
Chicago Medical School	§	§	§	§	6.7	18.2	30.0	69.0
Illinois	34.0	27.7	31.3	26.4	50.0	64.7	70.1	72.9
Northwestern	44.8	36.5	35.0	34.4	61.2	77.2	82.0	72.4
Rush	47.9	48.2	38.0	39.8	55.3	59.5	†	†
Stritch	†	†	23.3	13.6	39.6	62.0	53.6	70.2
University of Chicago	†	†	†	†	93.8‡	88.5	83.0	75.6
Indiana	46.2	29.0	32.9	25.0	45.9	56.3	60.2	55.9
Iowa	55.0‡	35.6	55.9	28.0	52.2	42.6	65.6	64.2
Kansas	62.5‡	25.0‡	34.8‡	16.2	38.1	60.9	67.2	65.2
Louisville	30.8	12.5‡	23.5	25.4	48.0	62.5	73.7	66.7
Louisiana State	†	†	†	†	58.3‡	50.0	57.4	44.2
Tulane	33.9	37.9	36.4	34.3	64.1	67.5	83.6	71.6
Johns Hopkins	76.7	76.2	71.7	75.8	97.6	88.7	88.3	86.3
Maryland	36.7	39.5	22.6	29.0	53.0	69.7	83.3	73.4
Boston University	50.0‡	37.5‡	27.8	23.7	61.8	74.2	82.2	84.1
Harvard	65.6	55.4	69.8	55.5	79.6	86.1	89.5	92.8
Tufts	29.0	22.0	30.4	24.7	59.7	60.0	75.0	73.9

\* The figures shown in this line differ slightly from those in Table 7 because graduates not in practice and graduates who did not report type of practice are included in the denominators. It was not possible to subtract these graduates from the individual medical college data for the earlier classes.

† Medical college not in operation or had no graduating class.

‡ Per cent based on less than 25 graduates.

§ Not included in study for this year.



APPENDIX TABLE 9—Continued

MEDICAL COLLEGE	YEAR OF GRADUATION							
	1915	1920	1925	1930	1935	1940	1945	1950
Michigan	62.9	37.9	40.5	38.1	72.9	73.3	83.0	73.1
Wayne	17.9	31.0	22.7†	20.0	48.8	73.0	70.8	53.8
Minnesota	40.0	44.8	45.8	25.3	42.9	59.0	70.8	63.3
St. Louis	54.5	22.4	24.6	24.4	42.4	57.6	71.8	66.7
Washington University	32.1	48.6	50.0	41.4	70.0	75.8	77.8	76.6
Creighton	20.0	20.0†	32.1	25.7	43.9	40.0	58.5	66.7
Nebraska	28.6†	18.9	27.2	32.2	64.9	54.0	70.0	35.9
Albany	39.5	43.8†	46.2†	...	52.2†	65.2†	85.2	65.9
Buffalo	35.7	23.8	18.4	17.5	52.2	83.3	70.5	77.0
Columbia	46.8	36.8	35.1	30.1	69.8	77.5	89.8	89.0
Cornell	60.0†	37.9	36.6	42.9	82.6	80.8	90.9	85.5
New York Medical College	§	§	6.2†	13.5	47.2	50.0	86.8	78.5
New York University	39.4	15.3	21.6	17.0	64.3	75.0	88.4	81.6
Rochester	†	†	†	63.6†	51.4	80.5	87.2	84.5
S.U.N.Y., New York	28.8	14.5	12.3	7.0	55.9	61.2	83.6	91.5
S.U.N.Y., Syracuse	41.7†	41.2	22.9	17.9	37.8	59.0	78.0	64.7
Bowman Gray	†	†	†	†	†	†	69.0	59.4
Duke	†	†	†	†	75.9	82.6	94.3	77.6
Cincinnati	§	§	42.1	48.8	76.2	65.2	71.7	58.6
Ohio State	45.7	25.0†	21.0	19.1	53.7	70.6	69.8	54.9
Western Reserve	43.3	29.5	37.5	40.4	61.9	72.7	87.5	79.4
Oklahoma	30.8†	36.4†	47.4†	17.1	54.1	50.0	61.2	46.7
Oregon	30.0†	30.0†	38.1	45.7	68.8	63.9	73.7	56.5
Hahnemann	21.4†	15.4	11.4	10.6	26.3	39.7	62.5	61.4
Jefferson	38.1	23.1	17.0	29.2	51.6	58.2	61.6	69.1
Pennsylvania	52.2	33.0	40.0	34.0	66.0	72.8	89.4	77.1
Pittsburgh	33.3†	32.3	25.0	16.7	41.5	55.2	69.8	60.7
Temple	§	§	13.8	11.4	60.8	58.2	74.5	55.4
Woman's	27.8†	28.6†	17.6†	...	52.9†	75.0†	73.3†	65.4
South Carolina	42.1†	25.0†	46.2	44.4	53.8	50.0	77.8	47.7
Meharry	...	...	...	4.0	23.1†	23.5†	40.5	39.4
Tennessee	39.5	63.6†	40.4	35.0	49.0	54.8	56.2	44.4
Vanderbilt	42.4	33.3†	40.0	57.6	58.8	79.1	84.1	76.5
Baylor	30.0†	30.4†	32.0	26.8	43.5	47.6	44.8	60.3
Southwestern	†	†	†	†	†	†	69.7	44.4
Texas	51.7	36.2	50.0	28.1	46.8	62.7	76.7	45.9
Utah	†	†	†	†	†	†	61.3	51.3
Vermont	37.5	23.8†	33.3†	33.3†	47.8†	55.2	86.4†	70.4
Medical College of Virginia	30.2	37.5†	37.8	33.3	54.7	58.5	68.1	56.2
University of Virginia	65.0†	73.1	53.3	59.1	54.3	87.8	91.3	68.1
University of Washington	†	†	†	†	†	†	†	54.1
Marquette	25.0†	54.5†	6.9	14.3	29.7	42.5	65.1	46.9
Wisconsin	†	†	†	35.7	64.1	68.4	81.1	72.7

APPENDIX TABLE 10

NUMBER OF MEDICAL COLLEGE GRADUATES WHO HAVE LIMITED PRACTICE TO A SPECIALTY  
OR WHO ARE GIVING SPECIAL ATTENTION TO A SPECIALTY, BY SPECIALTY:  
1935-1950 CLASSES

SPECIALTY	LIMITED TO A SPECIALTY				SPECIAL ATTENTION TO A SPECIALTY			
	1935	1940	1945	1950	1935	1940	1945	1950
Total:	1,768	2,260	3,128	2,856	643	490	246	305
Allergy	13	7	5	5	7	5	2	3
Anesthesiology	38	68	126	142	22	20	11	26
Bacteriology	4	1	1	0	0	0	0	0
Cardiovascular disease	9	6	7	10	17	9	5	6
Dermatology	47	46	61	45	5	7	2	2
Gastroenterology	6	5	6	9	4	5	0	0

APPENDIX TABLE 10—Continued

SPECIALTY	LIMITED TO A SPECIALTY				SPECIAL ATTENTION TO A SPECIALTY			
	1935	1940	1945	1950	1935	1940	1945	1950
Industrial practice	19	11	16	28	25	11	8	9
Internal medicine	328	527	741	632	74	81	56	59
Neurological surgery	13	20	34	30	0	0	1	0
Neurology	4	3	14	22	0	2	0	0
Obstetrics	11	15	4	3	42	25	15	29
Obstetrics and gynecology	165	210	260	254	54	61	27	27
Ophthalmology	80	90	107	113	6	3	2	0
Ophthalmology, otology, laryn- gology, rhinology	66	34	18	6	3	1	1	1
Otology, laryngology, rhinology	54	70	79	34	11	2	0	1
Orthopedic surgery	73	118	119	126	12	7	2	2
Pathology, clinical pathology	35	79	117	119	2	3	2	2
Pediatrics	114	156	288	287	28	37	16	26
Physical medicine	6	7	10	20	0	4	0	0
Plastic surgery	9	13	20	17	0	0	0	0
Proctology	18	6	3	4	9	2	1	1
Psychiatry	87	103	202	224	6	5	5	4
Psychiatry, neurology	53	41	41	19	1	1	0	0
Public health	64	28	24	24	0	0	2	4
Pulmonary diseases	25	15	15	4	20	7	2	2
Radiology	101	114	183	175	5	2	2	2
Surgery	229	371	409	371	271	174	75	84
Thoracic surgery	11	15	74	15	0	0	1	0
Urology	60	69	92	77	5	4	0	0
All other	23	9	44	39	8	9	7	15
Not reported	3	3	8	2	6	3	1	0

APPENDIX TABLE 11

PER CENT OF LIMITED SPECIALISTS WHO HOLD AN AMERICAN BOARD  
CERTIFICATE, BY SPECIALTY: 1935-1950 CLASSES

SPECIALTY	YEAR OF GRADUATION			
	1935	1940	1945	1950
Total:	61.9	40.6	46.2	46.6
Anesthesiology	63.2	39.7	50.0	40.8
Dermatology	61.7	67.4	77.0	80.0
Internal medicine*	60.9	34.6	35.0	40.7
Neurological surgery	76.9 <sup>#</sup>	30.0 <sup>#</sup>	29.4	16.7
Obstetrics and gynecology†	59.7	26.7	25.8	11.7
Ophthalmology, otology, laryn- gology, rhinology‡	72.0	52.6	70.1	70.6
Orthopedic surgery	69.9	39.0	32.8	35.7
Pathology, clinical pathology	71.4	64.6	68.4	70.6
Pediatrics	60.5	55.8	63.5	61.0
Physical medicine	83.3 <sup>#</sup>	42.9 <sup>#</sup>	60.0 <sup>#</sup>	30.0 <sup>#</sup>
Plastic surgery	77.8 <sup>#</sup>	15.4 <sup>#</sup>	35.0 <sup>#</sup>	35.3 <sup>#</sup>
Proctology	27.8 <sup>#</sup>	16.7 <sup>#</sup>	...	25.0 <sup>#</sup>
Psychiatry, neurology§	67.4	46.3	57.2	44.9
Public health	46.9	21.4	29.2 <sup>#</sup>	25.0 <sup>#</sup>
Radiology	83.2	73.7	90.7	80.0
Surgery	59.0	38.5	37.2	53.4
Thoracic surgery	81.8 <sup>#</sup>	40.0 <sup>#</sup>	67.6	80.0 <sup>#</sup>
Urology	71.7	13.0	9.8	36.4
All other	14.9	...	9.3	12.8

\* Includes cardiovascular disease and gastroenterology.

† Includes also obstetrics only.

‡ Includes also ophthalmology only and otology, laryngology, and rhinology only.

§ Includes also psychiatry only and neurology only.

<sup>#</sup> Per cent based on less than 25 limited specialists.

APPENDIX TABLE 12

PER CENT OF MEDICAL COLLEGE GRADUATES IN PRIVATE PRACTICE IN EACH  
GEOGRAPHIC DIVISION AND STATE: 1935-1950 CLASSES

DIVISION AND STATE OF PRACTICE	YEAR OF GRADUATION				CIVILIAN POPULATION 1958	PER CAPITA INCOME 1958*
	1935	1940	1945	1950		
United States:	100.0	100.0	100.0	100.0	100.0	\$2,057
New England:	6.2	7.2	6.2	6.1	5.8	2,335
Connecticut	1.6	2.3	1.9	1.9	1.4	2,817
Maine	0.4	0.6	0.3	0.3	0.6	1,704
Massachusetts	3.3	2.9	3.1	3.1	2.8	2,394
New Hampshire	0.3	0.6	0.3	0.3	0.3	1,885
Rhode Island	0.3	0.4	0.4	0.3	0.5	1,966
Vermont	0.3	0.4	0.2	0.2	0.2	1,745
Middle Atlantic:	27.2	21.2	19.3	16.6	19.4	2,420
New Jersey	4.1	3.1	2.9	2.9	3.4	2,521
New York	14.4	11.1	9.8	8.9	9.5	2,585
Pennsylvania	8.7	7.0	6.6	4.8	6.5	2,127
South Atlantic:	12.7	12.6	13.3	13.9	14.4	1,688
Delaware	0.2	0.4	0.3	0.2	0.2	2,760
District of Columbia	1.3	1.4	0.7	0.6	0.5	2,634
Florida	2.5	2.3	2.3	3.7	2.6	1,876
Georgia	1.5	1.5	2.0	1.9	2.2	1,487
Maryland	1.7	1.4	1.5	1.5	1.7	2,221
North Carolina	1.7	2.0	2.5	1.9	2.6	1,384
South Carolina	0.7	1.0	1.1	1.0	1.3	1,218
Virginia	1.9	1.9	2.0	2.4	2.2	1,674
West Virginia	1.2	0.7	0.9	0.7	1.1	1,509
East South Central:	4.3	5.0	5.9	6.5	6.9	1,336
Alabama	0.9	1.3	1.6	1.3	1.8	1,359
Kentucky	1.3	1.3	1.2	1.6	1.8	1,397
Mississippi	0.5	1.0	0.7	1.3	1.3	1,053
Tennessee	1.6	1.4	2.4	2.3	2.0	1,439
West South Central:	7.1	8.5	10.0	9.8	9.4	1,696
Arkansas	0.5	1.2	1.2	0.8	1.0	1,228
Louisiana	1.0	1.5	1.7	1.9	1.8	1,576
Oklahoma	1.2	1.3	1.5	1.5	1.3	1,740
Texas	4.4	4.5	5.6	5.6	5.3	1,814
East North Central:	19.1	18.5	18.1	16.8	20.9	2,182
Illinois	5.5	5.3	4.6	4.4	5.8	2,435
Indiana	2.5	2.3	2.7	1.9	2.7	1,990
Michigan	3.5	3.9	3.3	3.6	4.6	2,099
Ohio	5.5	5.1	5.3	4.8	5.5	2,184
Wisconsin	2.1	1.9	2.2	2.1	2.3	1,936
West North Central:	7.4	8.6	7.8	8.4	8.8	1,928
Iowa	1.4	1.7	1.4	1.2	1.6	1,863
Kansas	1.0	1.0	1.1	1.2	1.2	2,001
Minnesota	1.9	2.0	1.6	2.2	1.9	1,916
Missouri	1.9	2.6	2.3	2.3	2.5	2,037
Nebraska	0.8	0.9	0.7	0.9	0.8	1,894
North Dakota	0.2	0.3	0.3	0.2	0.4	1,697
South Dakota	0.2	0.1	0.4	0.4	0.4	1,641

\* From Survey of Current Business, August 1959.

APPENDIX TABLE 12—Continued

DIVISION AND STATE OF PRACTICE	YEAR OF GRADUATION				CIVILIAN POPULATION	PER CAPITA INCOME
	1935	1940	1945	1950	1958	1958*
Mountain:	4.3	3.4	4.8	4.6	3.7	\$1,935
Arizona	0.9	0.4	0.6	0.5	0.7	1,932
Colorado	1.1	1.1	1.5	1.8	0.9	2,047
Idaho	0.4	0.3	0.4	0.6	0.4	1,701
Montana	0.6	0.3	0.5	0.6	0.4	1,920
Nevada	0.1	0.1	0.1	0.1	0.1	2,569
New Mexico	0.4	0.4	0.4	0.5	0.5	1,838
Utah	0.6	0.5	1.1	0.3	0.5	1,753
Wyoming	0.2	0.3	0.2	0.2	0.2	2,088
Pacific:	11.7	15.0	14.6	17.3	10.7	2,449
California	9.0	11.4	10.7	13.5	8.1	2,559
Oregon	1.5	1.4	1.2	1.4	1.0	2,006
Washington	1.2	2.2	2.7	2.4	1.6	2,160

APPENDIX TABLE 13

PER CENT OF GRADUATES OF EACH MEDICAL COLLEGE IN PRIVATE  
PRACTICE IN THE SAME CITY, SAME STATE, AND SAME DIVISION  
AS THE MEDICAL COLLEGE ATTENDED: 1950 CLASS

FORM OF CONTROL AND MEDICAL COLLEGE	PER CENT OF PRIVATE PRACTITIONERS PRACTICING IN:		
	Same city* as medical college	Same state as medical college	Same division as medical college
Total:	14.8	45.6	59.3
Public control:	14.0	55.3	69.6
Alabama	21.1	63.2	65.8
Arkansas	9.3	48.8	79.1
California, San Francisco	26.7	80.0	80.0
Colorado	29.7	51.4	73.0
Georgia	2.1	66.0	85.1
Illinois	15.6	43.8	52.1
Indiana	15.0	51.7	61.7
Iowa	....	46.5	51.2
Kansas	2.2	45.7	60.9
Louisiana State	20.5	54.5	61.4
Maryland	27.8	38.9	61.1
Michigan	6.6	62.3	68.9
Wayne	39.4	78.8	81.8
Minnesota	14.3	71.4	77.6
Nebraska	7.0	35.1	57.9
S.U.N.Y., New York	30.2	66.0	71.7
S.U.N.Y., Syracuse†	4.8	66.7	71.4
Cincinnati	23.4	61.7	70.2
Ohio State	7.5	70.0	75.0
Oklahoma	10.0	62.0	78.0
Oregon	18.4	39.5	76.3
South Carolina	9.4	68.8	93.8
Tennessee	12.8	47.7	61.6
Southwestern	18.8	59.4	71.9
Texas	1.6	89.1	90.6

\* Medical colleges located in the suburbs of large cities have been considered as being in the city. Both St. Paul and Minneapolis have been considered "same city" for graduates of the University of Minnesota.

† Percentages based on less than 25 graduates in private practice.

APPENDIX TABLE 13—Continued

FORM OF CONTROL AND MEDICAL COLLEGE	PER CENT OF PRIVATE PRACTITIONERS PRACTICING IN:		
	Same city* as medical college	Same state as medical college	Same division as medical college
Utah	9.7	19.4	61.3
Vermont†	....	10.0	50.0
Medical College of Virginia	15.9	47.6	85.7
University of Virginia	8.6	54.3	68.6
University of Washington	14.3	60.7	78.6
Wisconsin	7.5	45.0	55.0
Private control:	15.4	38.2	51.3
Medical Evangelists	4.7	46.5	53.5
Southern California	13.9	86.1	88.9
Stanford	12.1	90.9	93.9
Yale†	....	17.6	35.3
Georgetown	2.6	2.6	12.8
George Washington	10.6	10.6	42.6
Howard†	4.5	4.5	31.8
Emory	12.9	45.2	83.9
Chicago Medical School	28.0	36.0	36.0
Northwestern	9.7	27.2	45.6
Stritch	5.0	47.5	60.0
University of Chicago	....	8.3	29.2
Louisville‡	24.2	53.2	56.5
Tulane	11.8	26.3	38.2
Johns Hopkins	10.8	21.6	32.4
Boston University	17.6	55.9	67.6
Harvard	16.7	33.3	38.9
Tufts	12.9	41.9	69.4
St. Louis	18.1	31.9	34.7
Washington University	16.3	30.6	34.7
Creighton	5.3	13.2	36.8
Albany	23.3	50.0	60.0
Buffalo	30.0	64.0	70.0
Columbia	26.8	39.3	50.0
Cornell	25.6	37.2	51.2
New York Medical College	14.5	43.6	54.5
New York University	25.4	38.8	56.7
Rochester	16.2	32.4	35.1
Bowman Gray†	13.0	43.5	69.6
Duke	4.7	27.9	46.5
Western Reserve	22.0	52.0	54.0
Hahnemann	26.8	36.6	65.9
Jefferson	11.6	34.7	50.5
Pennsylvania	16.7	30.3	45.5
Pittsburgh	27.3	75.0	77.3
Temple	8.5	34.0	53.2
Woman's†	6.7	26.7	53.3
Meharry	....	3.4	20.7
Vanderbilt†	22.7	50.0	59.1
Baylor	28.3	78.3	78.3
Marquette	14.3	32.1	48.2

‡The American Medical Association and the Association of American Medical Colleges now consider this medical college under private control.



APPENDIX TABLE 14

PER CENT OF GRADUATES OF EACH MEDICAL COLLEGE IN PRIVATE  
PRACTICE IN THE SAME CITY, SAME STATE, AND SAME DIVISION  
AS THEIR PRIOR RESIDENCE: 1950 CLASS

FORM OF CONTROL AND MEDICAL COLLEGE	PER CENT OF PRIVATE PRACTITIONERS PRACTICING IN:		
	Same city* as prior residence	Same state as prior residence	Same division as prior residence
Total:	25.0	57.8	68.5
Public control:	23.9	60.2	72.2
Alabama	31.6	65.8	68.4
Arkansas	11.9	50.0	81.0
California, San Francisco	33.3	75.6	75.6
Colorado	32.4	62.2	78.4
Georgia	22.2	66.7	86.7
Illinois	25.8	48.4	55.9
Indiana	25.0	53.3	61.7
Iowa	16.7	45.2	50.0
Kansas	15.6	42.2	60.0
Louisiana State	27.9	65.1	69.8
Maryland	37.0	59.3	70.4
Michigan	13.1	67.2	73.8
Wayne	39.4	78.8	81.8
Minnesota	17.0	68.1	74.5
Nebraska	18.5	42.6	63.0
S.U.N.Y., New York	32.1	71.7	77.4
S.U.N.Y., Syracuse†	23.8	61.9	66.7
Cincinnati	26.7	66.7	71.1
Ohio State	20.5	74.4	79.5
Oklahoma	16.7	56.2	72.9
Oregon	27.8	61.1	88.9
South Carolina	28.1	68.8	96.9
Tennessee	17.6	60.0	64.7
Southwestern	35.5	71.0	80.6
Texas	26.7	85.0	88.3
Utah	12.9	22.6	61.3
Vermont†	15.0	45.0	75.0
Medical College of Virginia	25.8	60.0	82.3
University of Virginia	37.1	62.9	74.3
University of Washington	25.0	60.7	78.6
Wisconsin	10.3	46.2	61.5
Private control:	25.9	56.1	65.6
Medical Evangelists	14.3	47.6	54.8
Southern California	19.4	80.6	86.1
Stanford	18.2	81.8	84.8
Yale†	23.5	52.9	76.5
Georgetown	33.3	71.8	76.9
George Washington	13.0	28.3	54.3
Howard†	33.3	57.1	71.4
Emory	19.4	64.5	74.2
Chicago Medical School	44.0	72.0	76.0
Northwestern	20.8	47.5	58.4

\* St. Paul and Minneapolis have been considered "same city."

† Percentages based on less than 25 graduates in private practice.

APPENDIX TABLE 14—Continued

FORM OF CONTROL AND MEDICAL COLLEGE	PER CENT OF PRIVATE PRACTITIONERS PRACTICING IN:		
	Same city* as prior residence	Same state as prior residence	Same division as prior residence
Stritch	17.5	55.0	60.0
University of Chicago	17.4	25.0	34.8
Louisville†	21.7	58.3	60.0
Tulane	32.9	57.9	69.7
Johns Hopkins	16.2	45.9	59.5
Boston University	23.5	61.8	67.6
Harvard	20.8	40.3	52.8
Tufts	22.6	56.5	67.7
St. Louis	38.9	68.1	73.6
Washington University	28.3	50.0	60.9
Creighton	25.0	52.8	66.7
Albany	34.5	62.1	65.5
Buffalo	44.0	72.0	76.0
Columbia	27.3	38.2	58.2
Cornell	27.9	58.1	69.8
New York Medical College	27.3	61.8	70.9
New York University	24.2	48.5	56.1
Rochester	21.6	43.2	45.9
Bowman Gray†	21.7	60.9	73.9
Duke	11.6	34.9	46.5
Western Reserve	30.0	54.0	64.0
Hahnemann	43.9	70.7	78.0
Jefferson	25.3	54.7	65.3
Pennsylvania	23.1	55.4	69.2
Pittsburgh	48.8	76.7	76.7
Temple	15.6	57.8	68.9
Woman's†	6.7	53.3	66.7
Meharry	37.9	51.7	55.2
Vanderbilt†	31.8	59.1	77.3
Baylor	26.7	75.6	80.0
Marquette	21.8	58.2	63.6

† The American Medical Association and the Association of American Medical Colleges now consider this medical college under private control.

APPENDIX TABLE 15

PER CENT DISTRIBUTION OF GRADUATES OF EACH MEDICAL COLLEGE IN PRIVATE PRACTICE, BY SIZE OF COMMUNITY OF PRACTICE: 1950 CLASS

MEDICAL COLLEGE	ALL SIZES	SIZE OF COMMUNITY OF PRACTICE				
		500,000 and over	100,000- 499,999	25,000- 99,999	5,000- 24,999	Under 5,000
Total:	100.0*	17.6	19.7	19.8	22.9	19.6
Alabama	100.0	....	39.5	15.8	15.8	28.9
Arkansas	100.0	4.6	23.3	18.6	27.9	25.6
California, San Francisco	100.0	33.3	11.1	22.2	17.8	15.6
Medical Evangelists	100.0	4.7	11.6	11.6	27.9	39.5
Southern California	100.0	16.7	16.7	22.2	30.6	11.1
Stanford	100.0	18.2	9.1	21.2	30.3	21.2
Colorado	100.0	2.7	35.2	16.2	24.3	21.6
Yale†	100.0	11.8	23.5	23.5	11.8	29.4
Georgetown	100.0	15.4	28.2	25.6	12.8	15.4
George Washington	100.0	12.8	19.1	25.5	21.3	19.2
Howard†	100.0	40.9	18.2	18.2	13.7	9.0
Emory	100.0	....	16.1	12.9	51.6	19.4
Georgia	100.0	....	14.9	25.5	29.8	29.8
Chicago Medical School	100.0	40.0	16.0	8.0	20.0	16.0
Illinois	100.0	20.8	18.8	31.2	18.8	10.4

\* Includes fifteen graduates whose community of practice was outside the United States or was not reported.

† Percentages based on less than 25 graduates in private practice.

APPENDIX TABLE 15—Continued

MEDICAL COLLEGE	SIZE OF COMMUNITY OF PRACTICE					
	ALL SIZES	500,000 and over	100,000– 499,999	25,000– 99,999	5,000– 24,999	Under 5,000
Northwestern	100.0	12.6	11.7	27.2	29.1	19.4
Stritch	100.0	20.0	15.0	22.5	27.5	15.0
University of Chicago	100.0	24.0	16.0	20.0	24.0	12.0
Indiana	100.0	6.7	28.3	16.7	25.0	23.3
Iowa	100.0	7.0	20.9	25.6	16.3	30.2
Kansas	100.0	2.2	32.6	23.9	10.9	30.4
Louisville	100.0	4.8	33.9	25.8	16.2	19.3
Louisiana State	100.0	25.0	4.5	15.9	25.0	29.6
Tulane	100.0	18.4	26.3	14.5	27.6	11.9
Johns Hopkins	100.0	21.6	8.1	21.6	35.2	13.5
Maryland	100.0	40.7	16.7	13.0	18.5	11.1
Boston University	100.0	23.5	20.6	26.4	11.8	17.7
Harvard	100.0	34.7	20.8	13.9	15.3	12.5
Tufts	100.0	17.7	22.6	21.0	22.6	14.5
Michigan	100.0	3.3	26.2	22.9	27.9	19.7
Wayne	100.0	42.4	3.0	18.2	18.2	18.2
Minnesota	100.0	16.3	16.3	12.2	26.6	26.6
St. Louis	100.0	26.4	16.7	20.8	22.2	13.9
Washington University	100.0	20.4	28.6	22.4	22.5	6.1
Creighton	100.0	10.5	28.9	29.0	7.9	23.7
Nebraska	100.0	7.0	14.0	8.8	31.6	38.6
Albany	100.0	10.0	40.0	23.4	13.3	13.3
Buffalo	100.0	38.0	12.0	14.0	16.0	20.0
Columbia	100.0	32.1	12.5	26.8	16.1	10.7
Cornell	100.0	27.9	14.0	20.9	18.6	18.6
New York Medical College	100.0	23.6	16.4	20.0	18.2	21.8
New York University	100.0	29.9	11.9	19.4	20.9	17.9
Rochester	100.0	13.5	37.9	27.0	16.2	5.4
S.U.N.Y., New York	100.0	37.7	15.1	17.0	20.8	9.4
S.U.N.Y., Syracuse†	100.0	23.8	9.5	....	47.6	19.1
Bowman Gray†	100.0	....	4.4	13.0	52.2	30.4
Duke	100.0	16.3	11.6	23.2	32.6	16.3
Cincinnati	100.0	27.7	12.8	12.7	29.8	17.0
Ohio State	100.0	7.5	25.0	12.5	32.5	22.5
Western Reserve	100.0	42.0	12.0	24.0	16.0	6.0
Oklahoma	100.0	2.0	32.0	16.0	26.0	24.0
Oregon	100.0	2.6	44.7	18.4	21.1	13.2
Hahnemann	100.0	43.9	17.1	9.7	12.2	17.1
Jefferson	100.0	18.9	17.9	23.2	23.2	16.8
Pennsylvania	100.0	30.3	13.6	16.7	21.2	18.2
Pittsburgh	100.0	34.1	13.7	11.3	25.0	15.9
Temple	100.0	14.9	14.9	23.4	25.5	21.3
Woman's†	100.0	26.6	....	20.0	26.6	26.6
South Carolina	100.0	....	3.1	40.6	15.6	40.7
Meharry	100.0	10.4	51.7	13.8	20.7	3.4
Tennessee	100.0	2.3	24.4	16.3	25.6	31.4
Vanderbilt†	100.0	4.5	31.8	18.2	18.2	27.3
Baylor	100.0	30.4	17.4	17.4	21.7	10.9
Southwestern	100.0	6.2	34.4	12.5	25.0	21.9
Texas	100.0	12.5	21.9	14.0	31.3	20.3
Utah	100.0	....	12.9	29.0	25.8	32.3
Vermont†	100.0	5.0	30.0	15.0	30.0	20.0
Medical College of Virginia	100.0	1.6	20.6	23.8	28.6	25.4
University of Virginia	100.0	....	25.7	31.4	22.9	20.0
University of Washington	100.0	3.6	28.6	10.7	28.6	21.4
Marquette	100.0	28.6	12.5	8.9	14.3	35.7
Wisconsin	100.0	22.5	15.0	35.0	7.5	20.0

APPENDIX TABLE 16

NUMBER OF MEDICAL COLLEGE GRADUATES IN PRIVATE PRACTICE, BY  
SIZE OF COMMUNITY OF PRACTICE AND TYPE OF PRACTICE: 1950 CLASS

SIZE OF COMMUNITY OF PRACTICE	TOTAL	General practice	TYPE OF PRACTICE Special attention to a specialty	Limited to a specialty
All sizes:	3,311	1,002	267	2,042
500,000 and over	584	66	24	494
100,000-499,999	652	123	31	498
25,000-99,999	655	110	40	505
5,000-24,999	757	273	78	406
Under 5,000	648	427	90	131
Foreign and unknown	15	3	4	8

APPENDIX TABLE 17

PER CENT OF MEDICAL COLLEGE GRADUATES IN PRIVATE PRACTICE IN  
INDIVIDUAL CITIES OF 500,000 AND OVER POPULATION WHO HAVE  
LIMITED PRACTICE TO A SPECIALTY: 1935-1950 CLASSES

CITY OF PRACTICE	YEAR OF GRADUATION			
	1935	1940	1945	1950
All cities of 500,000 and over:	66.2	75.6	82.9	84.6
Baltimore	70.6	74.1	80.8	76.0
Boston	91.3*	96.3	90.5*	94.4
Buffalo	53.3*	94.4*	76.0	81.0*
Chicago	55.4	62.7	68.3	77.8
Cincinnati	72.7*	68.2*	76.2*	68.8*
Cleveland	66.7	79.3	93.3	96.2
Detroit	46.4	80.0	77.8	75.0*
Houston	52.9*	81.8*	76.2*	72.4
Los Angeles	82.0	77.8	89.5	86.0
Milwaukee	63.6*	63.6*	80.0*	80.0*
Minneapolis	83.3*	87.5*	93.3*	72.7*
New Orleans	80.0*	82.6*	91.7*	77.8
New York	61.4	77.8	85.9	89.7
Philadelphia	65.1	65.6	78.6	81.8
Pittsburgh	59.1*	78.6*	84.6	66.7*
St. Louis	80.0	74.2	86.7	92.3
San Francisco	76.2*	75.7	88.9	95.6
Washington	76.5	68.4	86.4*	100.0*

\* Per cent based on less than 25 graduates in private practice.

APPENDIX TABLE 18

PER CENT DISTRIBUTION OF MEDICAL COLLEGE GRADUATES IN PRIVATE PRACTICE IN VARIOUS  
SIZE COMMUNITIES, BY SIZE OF COMMUNITY OF PRIOR RESIDENCE: 1950 CLASS

SIZE OF COMMUNITY OF PRIOR RESIDENCE	ALL SIZES	SIZE OF COMMUNITY OF PRACTICE				
		500,000 and over	100,000- 499,999	25,000- 99,999	5,000- 24,999	Under 5,000
Number of graduates	3,311*	584	652	655	757	648
All sizes:	100.0	100.0	100.0	100.0	100.0	100.0
500,000 and over	25.7	66.4	14.1	17.9	19.8	15.4
100,000-499,999	22.0	9.1	46.2	16.3	19.2	18.5
25,000-99,999	17.4	9.4	11.7	35.6	17.2	12.8
5,000-24,999	14.8	6.2	11.2	15.6	23.6	15.1
Under 5,000	17.8	7.4	14.4	13.1	17.7	36.0
Foreign or not reported	2.3	1.5	2.4	1.5	2.5	2.2

\* Includes fifteen graduates whose community of practice was outside the United States or was not reported.

APPENDIX TABLE 19

PER CENT OF GRADUATES OF EACH MEDICAL COLLEGE WHOSE PRIOR  
RESIDENCE WAS IN THE SAME CITY, SAME STATE, AND SAME  
DIVISION AS THE MEDICAL COLLEGE ATTENDED: 1950 CLASS

FORM OF CONTROL AND MEDICAL COLLEGE	PER CENT OF GRADUATES WHOSE PRIOR RESIDENCE WAS IN:		
	Same city* as medical college	Same state as medical college	Same division as medical college
Total:	28.4	62.6	73.5
Public control:	31.2	82.5	89.6
Alabama	30.0	87.5	87.5
Arkansas	36.2	95.7	97.9
California, San Francisco	20.0	90.8	92.3
Colorado	65.3	77.6	83.7
Georgia	7.7	94.2	96.2
Illinois	50.4	92.2	93.0
Indiana	23.5	95.6	95.6
Iowa	15.4	96.2	98.1
Kansas	9.4	87.5	96.9
Louisiana State	33.3	78.4	78.4
Maryland	37.5	57.8	68.8
Michigan	11.5	83.3	91.0
Wayne	79.5	97.4	100.0
Minnesota	31.2	84.4	88.3
Nebraska	21.3	75.4	88.5
S.U.N.Y., New York	66.2	77.5	91.5
S.U.N.Y., Syracuse	14.7	67.6	73.5
Cincinnati	42.9	85.7	89.3
Ohio State	32.0	96.0	96.0
Oklahoma	36.2	93.1	94.8
Oregon	54.5	72.7	90.9
South Carolina	15.9	93.1	95.5
Tennessee	20.4	69.4	84.7
Southwestern	28.6	65.7	71.4
Texas	10.0	97.1	98.6
Utah	74.4	89.7	100.0
Vermont	18.5	48.1	81.5
Medical College of Virginia	18.3	53.5	85.9
University of Virginia	10.6	61.7	74.5
University of Washington	62.2	83.8	86.5
Wisconsin	14.8	90.7	92.6
Private control:	26.4	48.4	61.9
Medical Evangelists	21.0	48.4	61.3
Southern California	45.8	85.4	85.4
Stanford	18.6	83.7	83.7
Yale	14.3	31.4	37.1
Georgetown	9.3	9.3	14.8
George Washington	33.3	33.3	54.4
Howard	32.4	32.4	44.1
Emory	34.1	53.7	80.5
Chicago Medical School	31.0	37.9	37.9
Northwestern	21.7	39.2	56.6
Stritch	44.7	55.3	63.8
University of Chicago	13.6	29.5	40.9
Louisville†	31.4	55.7	57.1
Tulane	13.6	29.5	44.3
Johns Hopkins	9.8	11.8	27.5

\* Medical colleges located in the suburbs of large cities have been considered as being in the city. Both St. Paul and Minneapolis have been considered "same city" for graduates of the University of Minnesota.

† The American Medical Association and the Association of American Medical Colleges now consider this medical college under private control.



APPENDIX TABLE 19—Continued

FORM OF CONTROL AND MEDICAL COLLEGE	PER CENT OF GRADUATES WHOSE PRIOR RESIDENCE WAS IN:		
	Same city* as medical college	Same state as medical college	Same division as medical college
Boston University	22.7	54.5	65.9
Harvard	9.9	19.8	24.3
Tufts	15.9	66.7	94.2
St. Louis	20.2	29.8	36.9
Washington University	30.0	38.3	43.3
Creighton	16.3	20.9	46.5
Albany	30.0	75.0	87.5
Buffalo	50.8	90.2	93.4
Columbia	48.1	58.0	77.8
Cornell	32.7	45.5	74.5
New York Medical College	47.7	63.1	78.5
New York University	66.3	74.4	89.5
Rochester	10.3	39.7	50.0
Bowman Gray	9.4	65.6	78.1
Duke	5.2	22.4	65.5
Western Reserve	48.5	79.4	79.4
Hahnemann	33.3	47.4	84.2
Jefferson	24.5	52.7	67.3
Pennsylvania	21.1	48.4	63.2
Pittsburgh	45.5	94.5	98.2
Temple	9.7	48.4	62.9
Woman's	12.0	28.0	56.0
Meharry	6.1	12.1	24.2
Vanderbilt	11.8	47.1	67.6
Baylor	28.1	80.7	84.2
Marquette	23.8	41.3	54.0

APPENDIX TABLE 20

PER CENT DISTRIBUTION OF GRADUATES OF EACH MEDICAL COLLEGE, BY SIZE OF  
COMMUNITY OF PRIOR RESIDENCE: 1950 CLASS

MEDICAL COLLEGE	ALL SIZES	SIZE OF COMMUNITY OF PRIOR RESIDENCE				
		500,000 and over	100,000- 499,999	25,000- 99,999	5,000- 24,999	Under 5,000
Total:	100.0*	27.1	22.2	17.8	15.2	17.7
Alabama	100.0	....	45.0	12.5	15.0	27.5
Arkansas	100.0	....	36.2	10.6	21.3	31.9
California, San Francisco	100.0	43.1	26.1	15.4	6.2	9.2
Medical Evangelists	100.0	26.8	19.6	8.9	17.9	26.8
Southern California	100.0	45.8	10.4	16.7	12.5	14.6
Stanford	100.0	27.9	30.3	20.9	18.6	2.3
Colorado	100.0	2.0	67.4	14.3	6.1	10.2
Yale	100.0	14.3	28.6	17.1	17.1	22.9
Georgetown	100.0	30.2	28.3	15.1	18.9	7.5
George Washington	100.0	42.8	14.3	16.1	10.7	16.1
Howard	100.0	63.6	12.1	15.2	9.1	....
Emory	100.0	....	39.0	29.3	14.6	17.1
Georgia	100.0	1.9	17.3	23.1	23.1	34.6
Chicago Medical School	100.0	75.9	13.8	6.9	3.4	....
Illinois	100.0	51.3	2.6	14.8	17.4	13.9

\* Excludes 27 graduates whose community of prior residence was outside the United States and 67 graduates who did not report place of prior residence.

APPENDIX TABLE 20—Continued

MEDICAL COLLEGE	ALL SIZES	300,000 and over	SIZE OF COMMUNITY OF PRIOR RESIDENCE				Under 5,000
			100,000- 499,999	25,000- 99,999	5,000- 24,999		
Northwestern	100.0	28.9	13.4	25.3	17.6	14.8	
Stritch	100.0	58.7	10.9	13.0	10.9	6.5	
University of Chicago	100.0	21.4	21.4	26.2	23.8	7.2	
Indiana	100.0	2.9	44.1	17.7	14.7	20.6	
Iowa	100.0	1.9	3.9	36.5	25.0	32.7	
Kansas	100.0	....	31.3	9.4	23.4	35.9	
Louisville	100.0	5.7	40.0	14.3	18.6	21.4	
Louisiana State	100.0	37.2	11.8	11.8	9.8	29.4	
Tulane	100.0	24.4	22.1	18.6	10.5	24.4	
Johns Hopkins	100.0	19.6	21.6	17.6	15.7	25.5	
Maryland	100.0	42.2	7.8	17.2	17.2	15.6	
Boston University	100.0	43.2	18.2	15.9	6.8	15.9	
Harvard	100.0	29.0	18.7	17.7	20.6	14.0	
Tufts	100.0	16.2	25.0	32.4	19.1	7.3	
Michigan	100.0	20.5	12.8	28.2	24.4	14.1	
Wayne	100.0	79.5	....	5.1	12.8	2.6	
Minnesota	100.0	34.2	22.4	7.9	15.8	19.7	
St. Louis	100.0	35.7	20.3	21.4	13.1	9.5	
Washington University	100.0	34.5	13.8	22.4	13.8	15.5	
Creighton	100.0	9.3	37.2	23.3	11.6	18.6	
Nebraska	100.0	4.9	26.2	14.8	14.8	39.3	
Albany	100.0	7.5	40.0	25.0	15.0	12.5	
Buffalo	100.0	57.4	8.2	14.7	8.2	11.5	
Columbia	100.0	52.5	10.0	8.8	17.5	11.2	
Cornell	100.0	41.8	14.6	18.2	12.7	12.7	
New York Medical College	100.0	53.9	12.3	16.9	9.2	7.7	
New York University	100.0	67.4	9.3	10.5	7.0	5.8	
Rochester	100.0	21.4	17.9	28.5	14.3	17.9	
S.U.N.Y., New York	100.0	64.7	15.5	8.5	2.8	8.5	
S.U.N.Y., Syracuse	100.0	14.7	23.5	20.6	20.6	20.6	
Bowman Gray	100.0	....	6.2	25.0	21.9	46.9	
Duke	100.0	17.2	19.0	24.1	19.0	20.7	
Cincinnati	100.0	46.4	12.5	17.9	16.1	7.1	
Ohio State	100.0	12.0	42.0	10.0	22.0	14.0	
Western Reserve	100.0	54.5	13.2	13.2	13.2	5.9	
Oklahoma	100.0	....	40.4	14.0	19.3	26.3	
Oregon	100.0	2.3	72.7	4.6	13.6	6.8	
Hahnemann	100.0	60.7	17.9	8.9	8.9	3.6	
Jefferson	100.0	30.9	13.6	20.9	17.3	17.3	
Pennsylvania	100.0	26.3	14.7	23.2	9.5	26.3	
Pittsburgh	100.0	45.4	5.5	9.1	20.0	20.0	
Temple	100.0	12.9	17.7	19.4	30.6	19.4	
Woman's	100.0	37.5	16.7	12.5	25.0	8.3	
South Carolina	100.0	....	2.3	36.3	18.2	43.2	
Meharry	100.0	12.1	48.5	21.2	9.1	9.1	
Tennessee	100.0	4.1	44.9	6.1	13.3	31.6	
Vanderbilt	100.0	3.0	27.3	18.2	21.2	30.3	
Baylor	100.0	31.6	14.0	12.3	24.6	17.5	
Southwestern	100.0	8.6	45.7	17.1	14.3	14.3	
Texas	100.0	7.1	30.0	22.9	22.9	17.1	
Utah	100.0	....	74.3	10.3	10.3	5.1	
Vermont	100.0	7.4	11.1	40.8	7.4	33.3	
Medical College of Virginia	100.0	4.2	22.5	26.8	12.7	33.8	
University of Virginia	100.0	2.2	36.9	32.6	8.7	19.6	
University of Washington	100.0	....	82.3	5.9	....	11.8	
Marquette	100.0	42.6	11.5	13.1	9.8	23.0	
Wisconsin	100.0	20.4	....	37.0	16.7	25.9	

APPENDIX TABLE 21

PER CENT DISTRIBUTION OF MEDICAL COLLEGE GRADUATES IN PRIVATE PRACTICE  
WHOSE PRIOR RESIDENCE WAS IN VARIOUS SIZE COMMUNITIES, BY  
SIZE OF COMMUNITY OF PRACTICE: 1950 CLASS

SIZE OF COMMUNITY OF PRACTICE	ALL SIZES	500,000 and over	SIZE OF COMMUNITY OF PRIOR RESIDENCE			
			100,000- 499,999	25,000- 99,999	5,000- 24,999	Under 5,000
Number of graduates	3,311*	850	729	577	488	590
All sizes:	100.0	100.0	100.0	100.0	100.0	100.0
500,000 and over	17.6	45.6	7.3	9.5	7.4	7.3
100,000-499,999	19.7	10.8	41.3	13.2	14.9	15.9
25,000-99,999	19.8	13.8	14.7	40.4	20.9	14.6
5,000-24,999	22.9	17.6	19.9	22.5	36.7	22.7
Under 5,000	19.6	11.8	16.4	14.4	20.1	39.5
Foreign or not reported	0.4	0.4	0.4	....	....	....

\* Includes 77 graduates whose community of prior residence was outside the United States or was not reported.

# COPY OF QUESTIONNAIRE

## SURVEY OF 1950 GRADUATES OF MEDICAL COLLEGES IN THE UNITED STATES

Please do not write in this column.

1. Name \_\_\_\_\_  
Last First Middle Initial
2. Place of practice \_\_\_\_\_  
City State 3. 1 Male 2 Female
4. Medical College \_\_\_\_\_ 5. Year of birth \_\_\_\_\_
6. Home residence at time of entering medical college \_\_\_\_\_  
City State
7. Nature of professional activities: (Check *one* to which most time is devoted.)  
 1. Care of patients 5. Resident or fellow  
 2. Teaching and/or research 6. Not related to medicine  
 3. Administration \_\_\_\_\_ Other \_\_\_\_\_  
 4. Public health \_\_\_\_\_ Specify \_\_\_\_\_
8. Source or sources of professional income:  
 1. Fee for service only  
 2. Fee for service and part-time salary  
 3. Full-time salary  
 Other \_\_\_\_\_  
 Specify \_\_\_\_\_
9. If in private practice, check organization of practice:  
 1. Individual 3. Group  
 2. Partnership \_\_\_\_\_ Other \_\_\_\_\_
10. If salaried (full or part-time), check *principal* employer: Specify  
 1. State or local health department 7. Non-Federal hospital  
 2. Medical school 8. Industry  
 3. Other educational institution 9. Pharmaceutical company  
 4. Armed Forces 10. Research institution  
 5. U.S.P.H.S. \_\_\_\_\_ Other \_\_\_\_\_  
 6. Veterans Administration \_\_\_\_\_ Specify \_\_\_\_\_
11. Specialization (Check *one*)  
 1. General practice  
 2. General practice with special attention to \_\_\_\_\_  
 3. Practice limited to \_\_\_\_\_  
 Specialty \_\_\_\_\_
12. American Board certificate, if any \_\_\_\_\_  
 Specify Board \_\_\_\_\_
13. Full-time graduate or post-graduate training  
 (Include only training lasting 6 months or more.)

TYPE OF TRAINING	TYPE OR FIELD	CITY	STATE	FROM		TO	
				Mo.	Yr.	Mo.	Yr.
Internship							
Residency or fellowship							
Other (Specify)							

14. Military service: \_\_\_\_\_ From \_\_\_\_\_ To \_\_\_\_\_  
 Branch Mo. Yr. Mo. Yr.
15. When did you decide on your present field of specialization?  
 1. In medical school 4. During residency  
 2. During internship 5. After a period of practice  
 3. During military service \_\_\_\_\_ Other \_\_\_\_\_  
 X Don't remember (Specify)
16. Remarks \_\_\_\_\_

Return in enclosed envelope to:  
 H. G. Weiskotten, M.D.  
 535 N. Dearborn Street  
 Chicago 10, Illinois

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## Austin Flint, Sr. (1812-1886): Educator of Physicians

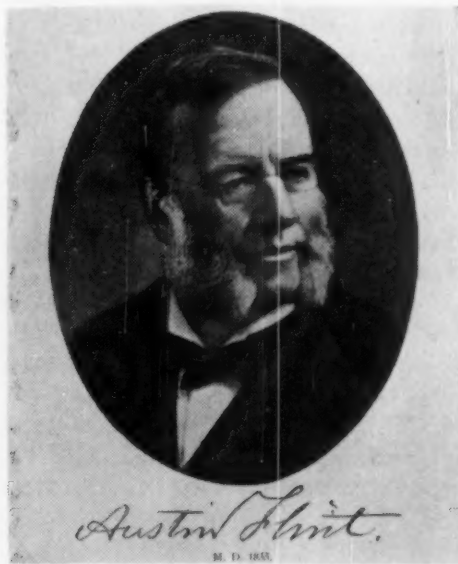
NORMAN SHAFTEL, M.D.

2705 Bedford Avenue, Brooklyn 10, New York

"A teacher affects eternity; he can never tell where his influence stops."

—*The Education of Henry Adams*

The vagaries of time often modify contemporary reputation in strange and unpredictable fashion; yet in the 100 years since Austin Flint first came to New York to teach medicine at Bellevue his importance to American medicine has continuously maintained its high and enviable position.



Courtesy N.Y. Acad. of Med.

FIG. 1.—Austin Flint, Sr., 1812-1886

In our present era, when clinical medicine has become increasingly influenced and dominated by mechanical and electronic aids to diagnosis and treatment, many of Flint's contributions, particularly in his favorite field of cardiology now seem outdated or even obsolete. However, by the corollary

token of a continuous historic reappraisal his tremendous efforts as a teacher and educator are now elevated to a new and even higher importance.

By every medical standard Austin Flint was a remarkable man: a challenging clinician, an outstanding investigator, and the author of the finest text book of medicine of his day, he nevertheless exerted his most lasting and profound influence as an educator of physicians. For Flint, teaching was a labor of love, a happy and fruitful coalescence of vocation and avocation to which he brought all his resources of education, enthusiasm, and unceasing effort. In the almost 50 years of his teaching career Flint educated thousands of medical students and practitioners at a half-dozen medical centers and may well be considered the most distinguished and influential American physician since Benjamin Rush and before the time of William Osler.

Flint's dual enthusiasm for learning and teaching was fortunately sustained by a robust constitution and a true genius for work; the combination achieving for him his well-deserved reputation as one of the foremost physicians of the nineteenth century.

### INHERITANCE AND EDUCATION

Although it is only fair to admit that Flint was handicapped neither by inheritance nor education he nevertheless elevated the prestige of the one and the stature of the other. From the viewpoint of the present report biographical details are of secondary importance, yet they are essential for a more

complete and understanding appraisal of the man and his work.

Flint's earliest "American" ancestor emigrated from Matlock, Derbyshire, England, to Concord, Massachusetts, in 1638<sup>1</sup> and his more immediate predecessors included an unbroken succession of reputable and prominent physicians who undoubtedly contributed a professional tradition that both influenced and inspired him. His great grandfather, Edward Flint, was a noted colonial physician practicing in Shrewsbury, Massachusetts, and his grandfather (after whom both he and his son were named) was a surgeon in the Revolutionary army. Joseph H. Flint of Northampton, Massachusetts, the father of Austin Flint was also a physician of talent and repute. Although not wealthy, and burdened with the support of a large family, he nevertheless encouraged his son's boyhood ambition to become a physician<sup>2</sup> and by a real sacrifice educated him at Amherst College and Harvard Medical School.

While his general medical interests were perhaps in large part hereditarily oriented, one might equally say heir-conditioned, the particular expression and direction of Flint's maturity as a physician were greatly influenced by the personal qualities, enthusiasms, and inspiration of at least several of his Harvard instructors. He acknowledged this indebtedness many years later in dedicating his outstanding book on clinical medicine to "James Jackson, John Ware and Jacob Bigelow . . . the spirit of whose oral instructions received during his pupilage, the author has endeavored to follow throughout life as student, teacher, writer, and practitioner."<sup>3</sup>

Flint's later and persistent predilection for the studies founded by Laennec was probably a result of his exposure to Dr.

<sup>1</sup> R. French Stone (ed.), *Biography of Eminent American Physicians and Surgeons*, p. 164. Indianapolis: Carlton and Hollenbeck, 1894.

<sup>2</sup> H. A. Smith, *One Hundred Famous Americans*, p. 340. New York: Geo. Routledge and Sons (n.d.).

<sup>3</sup> F. J. Heringhaus, *Famous Men in Medical History*. J. Mich. State Med. Soc. 31(2):129, 1932.

Jackson. From 1832 (Flint graduated from Harvard in 1833) Jackson was rarely seen without his stethoscope.<sup>4</sup> This is the more remarkable when it will be remembered that, although Laennec first published his classic on auscultation in 1819 and the first English translation (by John Forbes) appeared in 1821, even as late as 1836 a writer in a popular magazine referred to the stethoscope as "a new toy,"<sup>5</sup> and the instrument itself was only first mentioned in the Harvard Medical Catalogue of 1868-69.

Also born at Harvard was Flint's admiration for the great French clinician Louis whose method of analytical study greatly impressed him at the time, and so importantly influenced his later writings and teaching. The memoir of Louis, "Researches on the effects of bloodletting in some inflammatory diseases, and on the influence of tartarized antimony and vesication in pneumonia" was first published in 1828 and republished with notes by James Jackson in 1836. Flint, who was to become the leading representative and teacher of the statistical method of investigation, later acknowledged that he considered this article "a starting point for the application of statistics to studies in therapeutics."<sup>6</sup>

The high regard in which Flint held the position of medical instructor was, most probably, also a reflection of his admiration for his instructors at the Harvard Medical School, and he frequently stressed the importance of the teacher-pupil relationship. In an address to students he said, "it is not arrogating too much to say that the character and usefulness of the positions you are hereafter to occupy in life, will be likely to be affected in no small degree by the thoughts, views and aims derived from your

<sup>4</sup> H. R. M. Landis, *Austin Flint: His Contributions to the Art of Physical Diagnosis and the Study of Tuberculosis*. Johns Hopkins Hosp. Bull. 23:182, 1912.

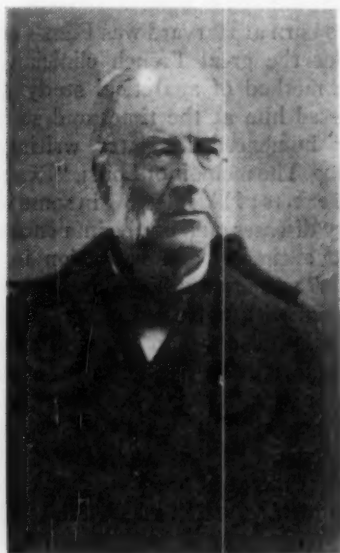
<sup>5</sup> A. Flint, *Medicine in The Past, The Present and The Future*. In: HENRY C. LEA, *Essays on Conservative Medicine and Kindred Topics*. Philadelphia, 1874.

<sup>6</sup> A. Flint, *The Natural History of Disease*. In: Lea, *op. cit.*

teachers."<sup>7</sup> He likewise expressed his opinion of the value of teaching in his statement that "it is not unbecoming to strive for a position of usefulness and distinction as a medical teacher, more than to aim to be useful and distinguished in medical practice."<sup>8</sup>

#### MEDICAL EDUCATION IN THE NINETEENTH CENTURY

The suggestion has already been tendered that Flint's most valuable contribution may



*From a print at N.Y. Acad. of Med.*

FIG. 2.—Austin Flint, Sr.

well have been made as a medical educator; and it therefore becomes pertinent to examine the state of medical education during Flint's formative years. At the time of his birth (1812) there were very few medical schools, and on the whole the system of medical education and licensure might best be described as an amorphous mess. Most medical candidates received their instruction by

apprenticing themselves to physicians for a period of 3-7 years, and this method served the majority well into the first half of the nineteenth century. During this period there was an obvious and overwhelming need for a supplementation of medical knowledge by more scientific methods.<sup>9</sup> It was furthermore evident that such implementation would require hospitals, clinics, and well trained teachers. To provide such necessary additions medical schools were required; but, owing to the absence of public or governmental financial support, their establishment depended entirely upon individual efforts from within the profession.

The difficulties arising from the absence of public or governmental financial support were multiplied by the anomalous and shortsighted political generosity of State Legislatures in granting charters wherever and whenever requested. And the general acceptance of the authenticity and validity of the medical diplomas thus granted only compounded the felonious situation, particularly as it soon became evident that into the same hands was given the business of teaching and the power of licensure.

Salaries had to be derived from student fees. The more students the greater the aggregate fees; and to entice more students the entrance requirements were successively lowered to meet competition from other medical schools. Students were also attracted in inverse proportion to the length of the school year, which had the economic effect of shortening the curricula and the term of studies. All these factors, in the summation, encouraged the unqualified and resulted in a descending spiral of attainment and medical aptitude.

In addition to the enervating handicap of low standards for admission, the medical schools were pathetically ill equipped to graduate properly trained physicians. Teaching was almost entirely didactic, and only on rare occasions was there the addi-

<sup>7</sup> A. Flint, *The Life and Labors of Laennec: an Introductory Address delivered at the New Orleans School of Medicine, Nov. 14, 1859.* New Orleans Med. News & Hosp. Gaz., Dec., 1859.

<sup>8</sup> A. Flint, *An Address delivered to the Graduates of the Long Island College Hospital, Brooklyn, New York, at the Annual Commencement on the Evening of July 24, 1860.* Brooklyn: Wilton, 1860.

<sup>9</sup> N. S. Davis, *Contributions to the History of Medical Education and Medical Institutions in the United States of America 1776-1876.* Special Report U.S. Bur. of Educ., Washington, 1877.



tion of a dissection. A box of old bones and a skeleton would represent the entire equipment of an anatomy department. Preliminary requirements for admission were often entirely absent, and degrees frequently conferred within a year.<sup>10</sup>

It was additionally unfortunate that a diploma from a school of inferior quality was legally as valid as one obtained at greater effort and expense at a better school.

When Austin Flint graduated from Harvard in 1833 the usual college term began in November and lasted from 12 to 16 weeks. During this time "the students in one class listened to five or six didactic lectures each day on as many different subjects, besides attending to dissection and clinical instruction when such was accessible."<sup>11</sup> With medical education in such an indefensible position it is not surprising that there was a general lack of public confidence in the doctor of that era and that the profession was "especially vulnerable to quacks, faddists and systematists like the proponents of homoeopathy, hydropathy or botanic medicine."<sup>12</sup>

However, isolated voices were heard which objected to the dual power of medical schools to educate and validate for the practice of medicine; and in 1839 the Medical Society of the State of New York adopted a resolution suggesting that the "right of teaching ought to be separated as much as possible from the power of conferring degrees or license." The discussion which began in 1839 was continued in 1845 and resulted in a call to a convention of delegates from the various medical schools and societies and "at the meeting of the American Medical Convention at New York on May 5, 1846, Austin Flint (the delegate from the Buffalo Medical Association) was appointed to a committee to report on a resolution for a

uniform and elevated standard of requirement for a degree of M.D. in all the medical schools of the United States."<sup>13</sup> The committee recommended that the period of lecturing be extended from 4 to 6 months, that candidates should have devoted at least 3 months to dissections, that the number of professors in medical schools be increased to seven, and that 3 years be devoted to the study of medicine.<sup>14</sup> It is to be noted that the committee's recommendations were not adopted then nor during the lifetime of Austin Flint.

In this miasma of medical mismanagement and apathy Austin Flint fought for a more dignified rapport between the doctor and the public. On the occasion of the first anniversary of the Rush Medical College in 1844 Flint emphasized the public's indifference to medical education and pleaded for support of medical institutions . . . "to accomplish the utmost practicable attainments in Medical Science and art, and to apply them . . . to the relief of human suffering and the prolongation of human life."<sup>15</sup> He then proceeded to champion the legality of dissection, post-mortem examinations, and philanthropy to medical schools, as well as the establishment of hospitals and clinics.

#### PROFESSORIAL PEREGRINATIONS

Although Austin Flint's most rewarding association as a teacher was with the Bellevue Medical School and Hospital, where he taught from 1861 until his death in 1886, his initial interest in teaching became evident shortly after his graduation from Harvard in 1833. Even preceding his first hospital appointment he would visit nearby towns to give medical lectures.<sup>16</sup> Between

<sup>10</sup> E. R. Cunningham, *A Short Review of the Development of Medical Education and Schools of Medicine*. Ann. Med. Hist. 7:237-38, 1935.

<sup>11</sup> N. S. Davis, *op. cit.*

<sup>12</sup> G. Miller, *Medical Education One Hundred Years Ago*. The Introductory Lecture, p. 4. Presented at the Annual Meeting of the Ohio Academy of Medical History, Cincinnati, April 26, 1958. Ohio St. M. J., Dec., 1958-Jan., 1959.

<sup>13</sup> A. Jacobi, *Miscellaneous Addresses and Writings*, being vol. 7 of *Collectanea Jacobi*. New York: The Critic and Guide Co., 1909.

<sup>14</sup> F. J. Heringhaus, *op. cit.*, p. 128.

<sup>15</sup> A. Flint, *The Reciprocal Duties and Obligations of the Medical Profession and the Public*; A Public Introductory Lecture delivered at the Rush Medical College. Chicago: Z. Eastman, 1844.

<sup>16</sup> E. M. Moore, in: *Official Report of the Memorial Meeting of the New York County Medical Association in Honor of the Late Austin Flint, M.D.*,



1833 and 1836 he practiced medicine in Northampton and Boston, and after his marriage in July, 1836, he moved to Buffalo, New York, where he then lived more or less continuously until 1852. When Flint originally settled in Buffalo it was a frontier town, the population numbered 18,000, and there were but 30 physicians. Without friends or reputation Flint created his own opportunities, and goaded by a desire to elevate the standards of his profession he eventually created a medical center in Buffalo.

Flint's publications began to appear in 1840. The respect accorded his writings so increased his reputation that in 1844 he was offered the Chair of the Institutes and Practice of Medicine at the Rush Medical College in Chicago. The school had only opened in the preceding year,<sup>17</sup> but when Flint joined the faculty in 1844 the college had already moved from its original two small rooms to a building of its own erected at a cost of \$3,500. Flint was considered "a brilliant addition" to the faculty but lectured for only one session. He was chosen to deliver the address on the occasion of the first anniversary of the opening of the College, and he spoke about the duties and obligations of the medical profession, a topic which was always important for him. During the course of this talk he detailed his views on the obligations of physicians saying that it was their duty "to fulfill to the best of our ability the claims of medical science." He also bared his own strong feelings that the doctor is attracted by "the ardor of investigation, the love of truth and the ever urgent motives of philanthropy." He added that the practitioner must sustain the character of the student, never relax his labors in the acquisition of new truths, and that he was obligated to investigate and contribute to the advancement of medical science. No

one ever followed his own injunctions more faithfully than Austin Flint himself, unhesitatingly, unfailingly, and unselfishly. He remained ever interested and active in the improvement of medical education and always actively championed this cause.

After finishing his one term at Rush, Flint returned to Buffalo. At the time there were many homeopaths and followers of Thomson practicing there in addition to the "regular physicians." In order to improve the general medical milieu Flint helped to organize the Buffalo Medical Association in 1845. This organization was instrumental in establishing the *Buffalo Medical Journal*; and Flint was chosen Editor and served in that capacity for 10 years. He generously supplied editorial supervision and scientific contributions to this journal which, owing largely to his efforts, became widely read in central and western New York and adjoining states and Canada.<sup>18</sup> The journal helped materially in attracting students to the University of Buffalo, which was established in 1846. Flint was one of the founders as well as Professor of Theory and Practice, a post which he maintained until 1852. He was particularly enthusiastic about the clinical material that was available in the hospital there, his only previous experience having been with patients resident in the almshouses, and of a type not particularly conducive to utilization for medical instruction.

It was during his first years at Buffalo that Flint began to record notes of all his interesting cases. This meticulous work occupied a great deal of his time; but it eventually formed the basis for many of his discoveries, writings, and teaching. He continued to record his medical experiences for more than half a century and, at the time of his death, left records covering almost 17,000 folio pages, all in his own hand. In this manner he developed his powers of observation and learned to interpret accurately the signs and symptoms of disease.

By 1852 Flint had become preoccupied

L.L.D., Held at the Carnegie Laboratory, Bellevue Hospital Medical College, N.Y., April 19, 1886. Trans. N.Y. State Med. Assoc., 3:494, 1887.

<sup>17</sup> F. R. Packard, *History of Medicine in the United States*, 2:854. New York: Hoeber, 1931.

<sup>18</sup> J. L. Smith, *Reminiscences of Prof. Flint. In: Official Report of the Memorial Meeting, etc.*, p. 476.

with the subject of variations of pitch in percussion and in respiratory sounds, and recorded these particular observations in a pocket notebook which was his constant companion. These notes became the basis for some of his most valuable writings. He was so taken with clinical observation and teaching that he even then begrudged the time requirements of his private practice which tended to prevent his presence at the hospital bedside.

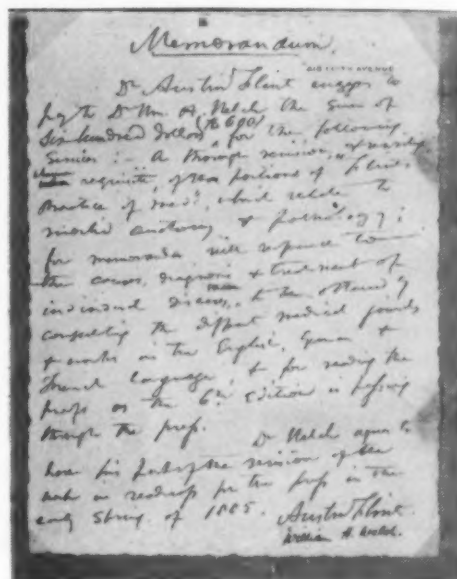
In 1852 Flint left Buffalo to accept the chair of the Theory and Practice of Medicine in the University of Louisville, where he remained until 1856. The literature is not clear about the reason for this change of school affiliation, but it seems fair to speculate that, with the rise in the professional status of Buffalo following the establishment of the medical school, there rose "professional jealousies and divisions"<sup>19</sup> which may have been distasteful to Flint, causing him to change his medical affiliation. In any event he accepted the post at Louisville. It should be noted, at this point, that the adverse criticism of "Dr. Flint" in Caldwell's Autobiography<sup>20</sup> referred to a Dr. Joshua Barker Flint (1801-1864), Professor of Surgery at Louisville in 1837, and apparently no relation of Dr. Austin Flint, whose tenure as Professor of the Theory and Practice of Medicine began in 1852.

In any case, after a 4-year stint at the University of Louisville, Austin Flint returned to the University of Buffalo in 1856 as Professor of Pathology and Clinical Medicine. During the winters of 1858-61, however, he taught in New Orleans as Professor of Clinical Medicine in the School of Medicine there, and as Visiting Physician at the Charity Hospital. It was during that tenure, while examining a patient with marked signs of aortic stenosis and insufficiency,

that he first noted the pre-systolic murmur at the apex which he described so beautifully and in such masterly detail in his classic paper "On Cardiac Murmurs"<sup>21</sup> which was published in 1862; and it is for this clinical contribution that he is best remembered by the medical student of this day.

#### THE YEARS AT BELLEVUE

The peripatetic professor made his final move, to New York City, in 1859, and he



Ms. No. 699, N.Y. Acad. of Med.

FIG. 3.—Memorandum agreement between Austin Flint and William H. Welch with respect to revision of Flint's "Practice of Medicine."

was to close out the remainder of his life and career there, where as Professor of the Principles and Practice of Medicine at the Bellevue Medical School, and as Physician at the Bellevue Hospital, Flint established his most "fruitful" connection. It was at Bellevue that Flint, as a medical teacher as well as an author and clinician, reached his greatest audience and exerted his most salutary influence. In the words of his colleague

<sup>19</sup> A. Flint, Address before the Erie County Medical Society, read at the June Meeting, 1861, by Prof. Eastman. Buff. Med. & Surg. J. and Reporter, 1:7, 1861.

<sup>20</sup> H. W. Warner, Autobiography of Charles Caldwell, M.D. Philadelphia: Lippincott Grambo & Co., 1855.

<sup>21</sup> A. Flint, On Cardiac Murmurs. Am. J. M. Sc., 44:29-54, 1862.

Welch he "reached a larger number of students and of physicians than has done any writer or teacher of medicine this country has produced."<sup>22</sup> Flint maintained his Bellevue appointments until his death in 1886, but between 1861 and 1868 he also taught as Professor of Pathology and Practical Medicine at the Long Island College Hospital in Brooklyn, eventually relinquishing this appointment to devote his entire energies to Bellevue.

Although Bellevue Hospital was opened as a "Publick Workhouse and House of Correction" in 1736, no use was made of its clinical facilities until 1850 when a clinical amphitheatre was opened and lectures given there by members of the hospital staff.<sup>23</sup> In 1860 it was suggested that a medical college be built in association with the Hospital, and a charter for such an institution being obtained in 1861 a medical college building was erected on the grounds of the hospital, and the first undergraduate courses were given in the autumn of 1861. With the opening of the new Medical College Austin Flint found his most satisfactory base of operation. He was prepared to devote the remainder of his years as Professor of the Principles and Practice of Medicine—teaching the concepts and precepts of good medicine—fortified by experience, application, and reputation.

At the Bellevue Medical College in New York 100 years ago the aggregate fees for a year's tuition amounted to 105 dollars, and "the necessary expenses of attending a course of lectures (comfortable board and lodging may be obtained for from \$3.50 to \$5 per week) need not much exceed \$200, exclusive of traveling expenses."<sup>24</sup>

Flint brought to Bellevue an ardor for investigation, a detestation for dogmatism, and a passion for teaching. He had been well trained in clinical observation and was in-

spired by a deep desire to elevate the standards of medical education. He was a staunch advocate of the analytic study of clinical cases, particularly at the bedside, and one of the most valuable features of his teaching was his insistence that students keep careful clinical records. He expected his students to make independent and searching studies of their assigned cases and to furnish full clinical reports. The methods of study and analysis which he taught were possibly of greater value to medicine than even his medical contributions and discoveries, important as these were.

As a follower of the great French clinician Louis, he believed that accurate opinions would only follow from accurate and trained observation, and these dependent on analyses of a considerable number of recorded cases, properly arranged and classified. And all observations and analyses were to be referred to everything observed in the living and dead body. Flint applied these principles particularly to his studies of tuberculosis and typhoid fever and supported the cause of medical statistics which was first propounded in Louis' *Recherches anatomico-pathologiques sur la Phthisie* in 1825.

Flint did not believe that great clinicians were born with superior inherent abilities; he felt rather that "the ability to observe correctly is not a natural gift, nor does it accompany, as a matter of course, the acquisition of knowledge from reading or didactic lectures. It is an art to be acquired,"<sup>25</sup> and by the toilsome efforts of personal observation of large numbers of cases.

Flint was a respected, impressive, and influential teacher because he set a fine example for his students, always passing on the most up-to-date instruction and seemingly obsessed by a drive to impart his knowledge to others; and it is fair to state that his personal popularity with the students at Bellevue was in large measure responsible for the popularity of the institution.

If Bellevue was fortunate with Flint, the

<sup>22</sup> W. H. Welch, in: Official Report of the Memorial Meeting, etc., p. 470.

<sup>23</sup> F. R. Packard, *op. cit.*, 2:751.

<sup>24</sup> Annual Announcement and Circular, p. 15. Bellevue Hospital Medical College, New York, 1863-64. New York: Baker & Godwin, 1863.

<sup>25</sup> F. J. Heringhaus, *op. cit.*, p. 132.

converse was equally true. Both the facilities and the clinical material were excellent, and teaching became a fortunate correlation of didactic and clinical elements. The Circular of the Bellevue Hospital Medical College (1863-64) explains that "an hour and a half of each forenoon was allotted to clinical instruction in the Hospital...in...the practice of medicine,—this period being preceded and followed by a didactic lecture. From half-past one to three o'clock...is another period devoted to Hospital instruction...after which follow the afternoon didactic lectures."<sup>26</sup> Such advantageous relationship between lecture and illustrative material was not common in the medical schools of the day.

In addition to the "regular" courses in Medicine, Dr. Flint gave special courses in such subjects as auscultation, percussion, and microscopy. It was customary for Flint to make his own independent ward rounds before his lectures, so that he might personally choose the material which would most suitably illustrate the topic under discussion. As a lecturer Flint was neither ostentatious nor melodramatic, yet his lectures were both well attended and received because they were masterpieces of perspicuous presentation.<sup>27</sup> They were trimmed of excess verbiage and philosophical commentary, direct, complete, up-to-date, and presented with dignity and enthusiasm.

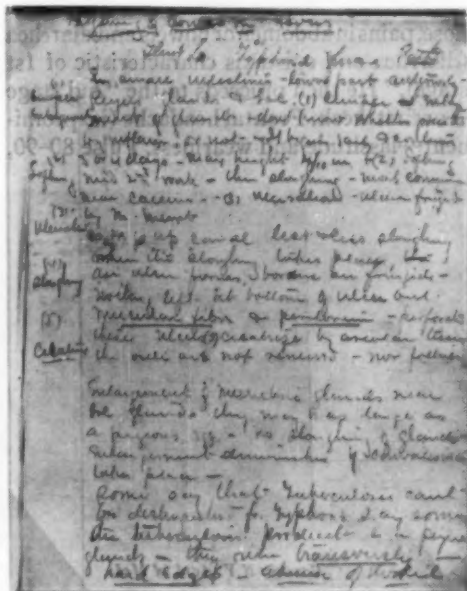
Probably because of the extreme importance he attached to accuracy, Flint almost always lectured from copious notes. He regretted his inability to lecture extemporaneously and only did so on one occasion when he felt completely competent to speak without notes—on the subject of cardiology, in which he was an international authority. His lectures have been described as characterized by "graceful delivery, simple but expressive language and systematic presentation of his subject."<sup>28</sup>

<sup>26</sup> Annual Announcement and Circular, *op. cit.*, p. 7.

<sup>27</sup> W. M. Carpenter, In Memoriam. Austin Flint, M.D., LL.D. James Marion Sims, M.D., LL.D., p. 8. New York: Stettiner, Lambert & Co., 1886.

<sup>28</sup> W. M. Carpenter, *ibid.*

Flint was neither proud nor opinionated, and when he either discovered, or had pointed out to him, that an opinion which he had held correct was unlikely or untenable he was quick to acknowledge his error. He held to the dictum, advanced by John Hunter, "Never mind what I taught before, I believe this now to be the truth."



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FIG. 4.—Page from Dr. Dennis' notes of Flint's lectures in medicine at Bellevue, 1873-74.

#### NOTES OF FLINT'S LECTURES IN MEDICINE AT BELLEVUE

One of Flint's pupils, Dr. Frederic S. Dennis, later Professor of Surgery at Bellevue, has left us his manuscript notes<sup>29</sup> taken at Flint's lectures in Medicine, and we may judge from these the caliber of his teachings. The following excerpts were taken from Dr. Flint's lectures given at Bellevue in 1873-74, and concern typhoid fever. It should be remembered that these lectures were presented 7 years before

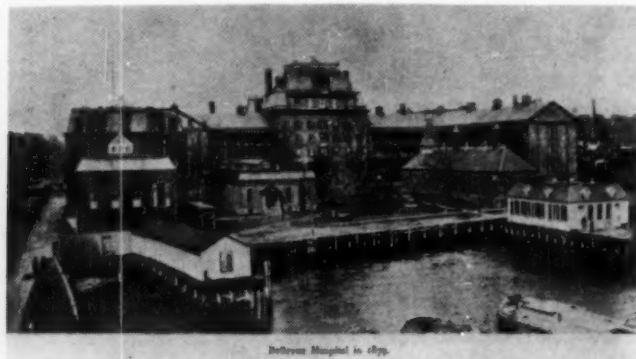
<sup>29</sup> F. S. Dennis, Ms. notes taken from the Lectures of Austin Flint on Internal Medicine. New York, 1873-74. N.Y. Acad. Med. Ms. no. 451.



Eberth reported his discovery of the typhoid bacillus.

Flint begins with a short introduction to the general subject of fevers and then proceeds to discuss the clinical history of typhoid, stage by stage. According to the manuscript notes taken by Dr. Dennis, Flint characterized the first stage by "lassitude, pain in the loins, headache, loss of appetite, nausea, dry tongue, thirst, bleeding from nose, pains in abdomen or bowels and diarrhea (diarrhea and epistaxis characteristic of 1st stage)." He then proceeds to the "2nd stage—or first week. Frontal headache (is) prominent—lassitude and weariness. Pulse 80–90,

1st week. Patient may become delirious and he wants to get out of bed but usually (this) is not prominent until the 2nd week. Sighing respiration is a forerunner of nervous symptoms. This denotes a grave disease. Congestion of the face and upper extremities not very well marked but it differs in this respect from Typhus. Sp. gr. (of urine) is increased due to augmentation of urea representing increased waste of tissue. More or less of a bronchitic cough is present with dry rales (and) with expectoration." Flint then proceeds with a clinical description of the second week of typhoid fever: "Countenance is listless—apathetic—moody when not



Courtesy N.Y. Acad. of Med.

FIG. 5.—Bellevue Hospital in 1879

Temp.  $99\frac{1}{2}$ – $100\frac{1}{2}$ . Bowels loose but may have constipation. Tender rt. iliac fossa connected with abdominal lesions of intestine—gurgling, can't sleep—delirium occasionally—toward the close of first week. Loss of appetite, thirst, vomiting not too common a symptom. Pulse accelerated during 1st week from 90 to 120. It (pulse) never offers resistance to pressure—quick and feeble. Line of ascent, systolic, is vertical, line of descent, diastolic, due to contraction of larger arteries. Tongue furred. Skin warm and dry. Epistaxis this week. Temperature is increased each day with variation between A.M. and P.M. This gradual increase is diagnostic—if (there is) no increase it is not Typhoid, although it may be an essential fever. Temperature of  $103^{\circ}$  in P.M. at end of

aroused—expressionless—eyes closed—coma vigil it is called. Capillary congestion is marked in center of cheek but (is) not circumscribed as in pneumonia. . . . If it is circumscribed it indicates a pneumonia is coming on. Delirium is of a passive type—patient is incoherent—pronounces words without meaning. You ask him a question and he will answer you but (I) doubt (that) dependence can be placed on his word. This is never especially marked in Typhus. The patient tries to get out of bed and if you persuade him to go back to bed again he will do it, but soon will try it again. If the delirium is of a character which causes the patient to scream out the prognosis is unfavorable. After the 1st week no pain is experienced in head—not annoyed by flies—



apathy—fecal evacuation and urine passed in bed not due to paralysis but indifference. No emotions. Abdominal symptoms most marked now—tenderness most marked in the iliac region—diarrhea—but diarrhea may be wanting—color yellow. He will not protrude the tongue—reddening at side of tongue coated blackish or brown-dry and hard—sometimes fissured and cracked. This is no criterion of the (condition of the) digestive system. Tongue is dry because a current of air passes over it. Temp. during 2nd week 102°–103° A.M., 103°–104° P.M.—if higher severe. If 105° A.M. prognosis bad—if above 106°–107° danger is immediate. Pulse 120–140. Asthenia coming on if this height is reached—if transient grave too. Urine may show albumin—if in great quantities shows affection of tubules, and if casts are present indicative of renal trouble (and) prognosis is grave.”

These remarks are the observations of a meticulous, patient observer who obviously has had his learning at first hand, and at the bedside. Flint has distilled the fruits of his own trained observations and has served it up, palatably, completely, and with appropriate commentary about the differential diagnosis, prognosis, and pathological correlation in masterful clinical presentation. He then describes, in similar vein, the eruption of typhoid fever, which is noted “seven days after the patient takes to bed—diagnostic—look for it over the trunk. Not confined to the chest and abdomen—character of the eruption papular not maculated—oval, soft red color. If light pressure is made it disappears. Comes in crops not very abundant—a succession of crops, 15 or 20 in a patch. Sudamina or miliary not distinctive of this fever.”

With equal clarity and conciseness Flint, in later lectures on the same disease, expounds on the other aspects of the subject, the favorable signs, the unfavorable signs, the gastrointestinal complications, the signs of peritonitis, and the treatment. During the course of these lectures he frequently cites the work of other investigators, always giving proper credit where due.

#### RELATIONSHIPS WITH STUDENTS, COLLEAGUES AND PATIENTS

In the presentation of his lectures he constantly evidences his receptivity to new ideas, crediting others for advances and adapting his teaching to changes suggested by new scientific contributions to the subjects. He was equally quick to test out these newly presented facts whenever and wherever possible, and if he found that they had merit would immediately relay the information distilled through his perceptive evaluation to his students. Flint was one of the first, and perhaps most enthusiastic, followers of the concept of bacterial infection in America. When Koch's description of the tubercle bacillus was published in 1882 Flint had sputums of Bellevue patients examined and immediately recognized the enormous importance of his work. In 1884 he read a paper emphasizing the fact that tuberculosis could be contracted by exposure. Flint was 72 years old at this time, and, like Michelangelo, who was productive at 90, Flint was still learning and productive up to the hour of his death.

Austin Flint was perhaps happiest at the bedside while teaching his students, and probably contributed more than any other physician of his day toward popularizing the methods of exploration by physical signs. He contributed generously of his time, energies, and accumulated knowledge to his ward patients and students, all for the eventual relief of human suffering and the prolongation of life.

Although he was in constant demand as a consultant he never permitted himself to be drowned in the maelstrom of private practice, always preferring service to the poor to the glory of personal aggrandizement. Always gentle and polite he was particularly kind to the less fortunate because, as he remarked,<sup>30</sup> “such patients have claims of poverty added to those arising from their diseases. Brutality is less reprehensible when manifested towards those whose influence is valuable, from whom fees are expected, and

<sup>30</sup> W. H. Welch, *op. cit.*, p. 470.

who can terminate at any moment professional relations with their medical advisers." Customarily he treated his patients with kindness and respect and expected orderliness and quiet during his bedside instruction.

He was equally generous and modest in his relations with his interns. On one occasion when asked to settle a disputed diagnosis he made his usually exhaustive examination and then gave his opinion. The intern said "Sir, I still think that I am in the right." Without any bitterness or manifestation of annoyance Flint mildly retorted, "My friend, I am under a strong impression that you are in error for the following reasons" and then proceeded to explain, in considerable detail, his reasons for his position, but without wounding the intern's questionable sensitivities.<sup>21</sup> Through encounters such as this did Flint gain the respect and admiration of his staff and colleagues.

As concerned as Flint was about the duties of the physician and student toward society he was at least equally concerned with the obligations of the public to medicine, and most importantly concerned with medical ethics. It has already been mentioned that he advocated legislation for legalizing dissection and post-mortem examinations and championed the concept of philanthropy toward medical schools. He also attacked quackery mainly by public lectures which educated the public against the danger. His personal code of ethics was strict. In 1882 when the New York Medical Society adopted a code to which he personally could not subscribe, sanctioning consultation with other than allopathic physicians, Flint reluctantly resigned from the organization in which he had served as president, and to which he had devoted so much time and effort.

#### CONTRIBUTIONS TO MEDICAL LITERATURE

The influence of Austin Flint as a medical educator extended beyond the thousands of medical students and practitioners whom he

reached by his lectures at the Bellevue Hospital and Medical School; his important medical writings reached an ever expanding audience of physicians and students throughout this country and overseas. His bibliography lists more than 200 papers, including several classics, but more important to medical education was his monumental *Treatise on the Principles and Practice of Medicine* to which he had devoted 24 years of previous medical experience and preparation. This was the best book on general medicine of the day and is valuable even now as an indication of the status of medicine in the second half of the nineteenth century. The book was widely read and accepted. Its style was simple, direct, and lucid, and Flint maintained it always up-to-date by frequent revisions. It was in its seventh revision at the time of Flint's death. In preparing the sixth edition Flint obtained the assistance of his colleague William Welch to rewrite that portion of his book which related to morbid anatomy and pathology. To this end Flint drew up an informal manuscript document, signed by both parties, and to the effect that "Dr. Flint engages to pay Dr. William H. Welch the sum of six hundred dollars (\$600) for the following services: A thorough revision and rewriting wherever requisite of those portions of Flint's *Practice of Medicine* which relate to morbid anatomy and pathology; for memoranda with reference to the causes, diagnosis and treatment of individual diseases, these to be obtained by consulting the different medical journals and work in the English, German and French language, and for reading the proofs as the 6th edition is passing through the press.

"Dr. Welch agrees to have his part of the revision of the work in readiness for the press in the early Spring of 1885."<sup>22</sup>

This document affords additional insight into the extreme care that Flint exercised to maintain the highest standards for his work. It is also pertinent to note that his book included a discussion of the professional conduct of the physician, a topic always close to

<sup>21</sup> J. W. S. Gouley, *op. cit.* Official Report of the Memorial Meeting, etc., p. 485.

<sup>22</sup> Memorandum (n.d.) N.Y. Acad. Med. Ms. 699.

his heart. Of Flint's book the London *Lancet* (Mar. 12, 1887) said: "It has few equals in point of literary excellence or scientific learning and no one can fail to study its pages without being struck by the lucidity and accuracy that characterize them."

#### CLINICAL CONTRIBUTIONS TO CARDIO-PULMONARY DISEASE

As already mentioned Flint wrote many other papers of varying degrees of importance, but the most noteworthy were in the main concerned with the diseases of the heart and lungs, an area to which he contributed his greatest efforts and enthusiasm. Auenbrugger and Laennec had blazed this particular trail, but neither they nor their followers recognized the value of the change in the pitch of percussion or auscultation, and to Flint must be given credit for this addition and refinement. Before Flint there had been no previous attempt to differentiate cavernous from bronchial or tubular respiration, nor emphasis on the importance of pitch. In his AMA prize paper of 1852<sup>33</sup> he promulgated the law applicable to percussion that "an elevation of pitch always accompanies diminution in resonance in consequence of pulmonary consolidation. In other words dullness of resonance is never present without the pitch being raised." To Flint must also go the credit for the concept of movable dullness in pleural effusion, and the emphasis on the obliteration of liver dullness in cases of perforated bowel. He also described clearly for the first time vesiculotympanic resonance and broncho-vesicular breathing and suggested the diagnostic value of whispered voice sounds.

However, Austin Flint is best known for the murmur which bears his name and which he first described in 1862 in his famous paper "On Cardiac Murmurs."<sup>34</sup> Flint himself decried the use of eponymic description, saying that "so long as signs are determined from fancied analogues, and named from these or

after the person who describes them, there cannot but be obscurity and confusion."<sup>35</sup>

Although the art of physical diagnosis was in its infancy at the time of Flint's birth, it had grown to maturity and respectability by the time of his death, and due largely to Flint's own efforts and contributions, particularly in the field of heart and lung disease. Among his other valuable contributions in this sphere must be mentioned his book on physical exploration of the chest<sup>36</sup> and his equally valuable book on the diagnosis, pathology and treatment of heart diseases.<sup>37</sup>

The writings of Austin Flint were voluminous and based largely on his personal and painstaking observation, original and statistical in viewpoint. His intense interest and energy in the cause of medicine and medical teaching made his task a pleasurable one. He is reputed to have remarked on more than one occasion that "it is a positive enjoyment for me to write, and when the work of the day is done, I sit in my office and frequently write until eleven, twelve, one and perhaps two o'clock in the morning, before I feel tired enough to go to bed."<sup>38</sup> Once he admitted that "sometimes I become a little exhausted, but this feeling soon wears off."<sup>39</sup> Flint exemplified the wise utilization of scraps of time, which he stole from his ordinary commitments or even from his relatively few moments of leisure.

Flint's reputation as a foremost clinician, combined with his personal characteristics of humility and honesty contrived his popularity as a consultant. Patients were particularly impressed by his sincerity, thoroughness of examination, and general optimism.

<sup>33</sup> F. A. Willius and T. E. Keys, *Cardiac Classics*, p. 500. St. Louis: C. V. Mosby Co., 1941.

<sup>36</sup> A. Flint, *A Practical Treatise on the Physical Exploration of the Chest and the Diagnosis of Diseases Affecting the Respiratory Organs*. Philadelphia: Blanchard & Lea, 1856.

<sup>37</sup> A. Flint, *A Practical Treatise on the Diagnosis, Pathology and Treatment of Diseases of the Heart*. Philadelphia: Blanchard & Lea, 1859.

<sup>38</sup> W. M. Carpenter, *op. cit.*, p. 7.

<sup>39</sup> Obituary Notice. *Medical Register* N.Y., N.J., and Conn., p. 244. 1886-87.

<sup>33</sup> W. S. Middleton, *A Biographic History of Physical Diagnosis*. Ann. Med. Hist. s.l. V. 6 1924.

<sup>34</sup> E. C. Kelly (compiler), *Medical Classics*, 4(8):862, 1940.

He was never called upon for help when he did not give the utmost of his knowledge, and with typical respect for both patient and referring physician.

Flint was considered by some as a therapeutic nihilist, probably because he frequently quoted the concepts first proffered by Bigelow in his essay on the self-limited character of disease. It is true that Flint was sensitive to the sources of error in therapeutics<sup>40</sup> and in his introduction to his book on clinical medicine he classifies and discusses these as errors of ignorance, errors of a priori reasoning, errors of fallacious experience, errors of authority, and errors of skepticism. But it would seem more correct to describe him as a therapeutic realist, because he advocated hygienic measures and prescribed drugs whenever he felt that some good scientific evidence supported their value.

It is to his credit that he had the courage to recognize and act in accordance with his own convictions concerning the limitations of the pharmacopeia of his day; particularly is this true, as, largely by his own work, he helped establish the validity of the doctrine of self-limitation of disease.

This author fears that his critical evaluation of Flint's consummate virtues will be, to put the most tactful face on it, ascribed to the enthusiasm of a writer for his subject. In this respect it is almost frightening to contemplate the pristine perfection of this man. The writer's initial skepticism intensified the search for some peculiarity, idiosyncrasy, or character aberrance with which to spice the study, but could find no suitable imperfection.

Flint has been described as tall, powerful, and handsome, with "brilliant, clear, dark hazel eyes."<sup>41</sup> His features were regular and his expression cheerful, while he was quick in his movements. He was studious, punctual in keeping his appointments, self-sacrificing and a wise counselor and friend to his patients and associates. He was a kind and considerate husband and father, and his

wife was his constant and affectionate companion both at home and on his trips abroad.

#### THE LAST DAYS

To the very end of a long and brilliant career Flint's mind was receptive to new ideas and dominated by the desire to pass on this information to his students and the medical profession in general. Just a few days before his death he questioned Dr. J. Lewis Smith about O'Dwyer's newly described laryngeal intubation and to the very end he was spending  $\frac{1}{2}$  hour each day in the study of German so that he might more accurately read literature in that language.<sup>42</sup>

Two weeks before his death Flint complained of a loss of nervous energy and exhaustion. He was advised by a friend to rest and cancel his lecture, to which Flint answered, "I have never omitted a lecture or quiz, and I shall try it, though I fear I may break down."<sup>43</sup> And he carried on with his duties as he had promised he would. On the evening preceding his death he attended a scheduled faculty meeting and returned to his home at 11 P.M. He then immediately retired to his bedroom but at midnight was noted to be unconscious. He remained comatose thenceforth until his death at 2 P.M. on Saturday, March 13, 1886. He apparently had succumbed to the cerebral hemorrhage that he had predicted for himself during the Philadelphia Centennial 10 years earlier.

Austin Flint was not without honor in his own profession. At the age of 34 he had been appointed a delegate to the National Medical Convention. In 1873 he became President of the New York Academy of Medicine. In 1881 he was delegate to the International Medical Congress in London and there elected an honorary Vice-President. At the 1884 meeting he was elected to serve as president for the 1887 meeting in Washington, D.C., but his death intervened before he could assume this office.

In 1884 he was elected President of the American Medical Association and served

<sup>40</sup> W. H. Welch, *op. cit.*, p. 469.

<sup>41</sup> F. J. Heringhaus, *op. cit.*, p. 132.

<sup>42</sup> J. L. Smith, *op. cit.*, p. 478.

<sup>43</sup> E. S. F. Arnold, *op. cit.*, p. 487.



with distinction. His only extra-medical honor was conferred by Yale University (Dr. of Laws, 1881). In reply to a commendatory letter Flint wrote "I value the honor much, but no scientific or literary mark of distinction would weigh with me for anything, if I could not at the same time feel assured of the support and appreciation of my profession, of those who are workers with me in the same cause."<sup>44</sup>

Dr. Flint would have been humbly grati-

fied by the words of his colleague and friend, Dr. William H. Welch, who said of him, after Flint's death, "He did more by his writings and his teaching than anyone else in this country to render popular the methods of exploration by physical signs" and that "his writings will remain an enduring legacy to posterity."<sup>45</sup>

<sup>44</sup> J. M. Da Costa, Biographical Sketch of Dr. Austin Flint. Tr. Coll. Phys. Third Series. 19:461-70. Philadelphia, 1887.

<sup>45</sup> W. H. Welch, *op. cit.*, p. 471.



# Medical Manpower in Physical Medicine and Rehabilitation\*

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In planning for the health needs of patients with chronic illness in our country, either at the national, state, or local level, it is essential that primary consideration be given to the provision of medical care and the role of the physician. Whereas many other professions play an important role in the health care of patients with chronic illness, there is no substitute for good medical care. It is the physician who frequently has the opportunity for prevention and for early case findings. The diagnosis of a patient's condition cannot be made without the physician, nor can the plan for comprehensive management and rehabilitation be made. Both the quantity of physicians and the quality of the care they are prepared to render are equally important in considering the role of the medical profession in the health care of patients with chronic illness.

This paper will attempt to answer three kinds of questions:

1. Is the supply of physicians, both those in general practice and those who are qualified specialists, keeping up with the demands of the population?
2. What factors are known to play a role in motivating physicians to decide on their future medical career?
3. What leads can be abstracted from the facts, to assist in the promotion of more

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physicians into the field of physical medicine and rehabilitation?

## THE SUPPLY OF PHYSICIANS

### The Present Status of Medical Specialists for Children

The number of certified medical specialists and their ratio to children under the age of 21 years are shown in Table 1. The ratios of the numbers of all of these specialists are of a small order of magnitude. Psychiatrists have both the lowest total number (369) and the lowest ratio to children (0.6 per 100,000 children). Pediatricians, and neurologists and psychiatrists (really two specialty groups) are the two most frequent.

### The Present Status of Individual Medical Specialties for Children

1. *Physiatrists.*—Considerable variation exists in the current availability of certified physiatrists for the care of children among the states. The range varies from a high of 1.8 per 100,000 children in New York to a low of none in eleven states. States with the highest rates of availability are Colorado, Connecticut, Minnesota, New Hampshire, New York, and Pennsylvania. States without at least one physiatrist are predominantly located in the midwestern and western sections of the country. The ratios of physiatrists to children in all states are low (Chart 3).

2. *Other medical specialties.*—Similar variation exists in the availability of certified pediatricians, orthopedic surgeons,

ophthalmologists, otolaryngologists, anesthesiologists, neurologists and psychiatrists, and medical specialists in preventive medicine among the states. In general, with some exceptions, those states in a more advantageous position are located in the Northeast, Middle Atlantic, and Western regions of our country. States with the lowest availability of these specialists are located in the Southern and Midwestern regions of the country (Charts 1, 2, 4, 5, 6, 7, 8).

### Trends in Medical Manpower

The ratio of all physicians to the general population has remained stationary, whereas the ratio of general practitioners and part-time specialists to the general population has declined (15-17). Because of the increase in the childhood population, the ratio of all physicians to children under 21 years of age in the United States has been steadily decreasing since 1949. For physicians in general practice and part-time specialists, the decrease has occurred since 1940 but has been more marked since 1949 (Chart 9).

For the medical specialty groups there has been a greater increase in the ratio of the total number of certified pediatricians, anesthesiologists, and orthopedists, and a slower increase in the total number of physiatrists and ophthalmologists per 100,000 children under 21 years of age in the last two decades. Although data for the total number of otolaryngologists are not so complete, since 1954 there has been a decrease in the ratio per 100,000 children under 21 years of age (Chart 10).

Still another way of looking at trends in manpower of medical specialists is to answer the question "Is the supply of new medical specialists (the number of new specialists certified each year) keeping up with the annual number of live births?" The ratio of new physiatrists has never been able to keep up with the live births (Charts 11, 12). It is evident that during World War II there was a decline in the ratios of

all other new medical specialists to the annual number of live births. Following World War II, there was a marked increase in the ratios of certain new specialists (anesthesiologists, pediatricians, orthopedists, ophthalmologists, and otolaryngologists). On the other hand, since the middle 1950's, there has been a decrease in the ratios of new pediatricians, orthopedists, ophthalmologists, and otolaryngologists, and a leveling off of new anesthesiologists.

It is also clear from other data available that there has been a gradual increase in the

TABLE 1  
NUMBERS OF MEDICAL SPECIALISTS AND  
RATIOS TO CHILDREN—1959

Type of medical specialist	Total no. certified by Specialty Board	Ratio to 100,000 children*
Pediatricians	7,018	10.7
Neurologists and psychiatrists	6,018	9.2
Otolaryngologists	5,385	8.2
Ophthalmologists	4,996	7.6
Orthopedic surgeons	3,173	4.2
Anesthesiologists	2,154	3.3
Preventive medicine	1,629	2.5
Physiatrists	369	0.6

\* Under 21 years of age.

Data on the number of medical specialists were provided by the secretaries of the respective medical specialty boards, except for two (preventive medicine, and neurology and psychiatry) which were secured from the Directory of Medical Specialists (2).

number and percentage of the population aged 65 years and over and that this age group has the highest incidence of chronic disease and disability. These facts mean that there is also an increased demand for physiatrists for patients in this age group, and that the supply is not keeping up with the demand.

Data on residencies in the medical specialties are shown in Table 2. Those specialties with the largest number of residencies are surgery, pathology, medicine, obstetrics, radiology, and pediatrics. By and large, these specialties also have the highest numbers and percentages of residency positions filled, for both first year and total appointments. It is of interest that physical

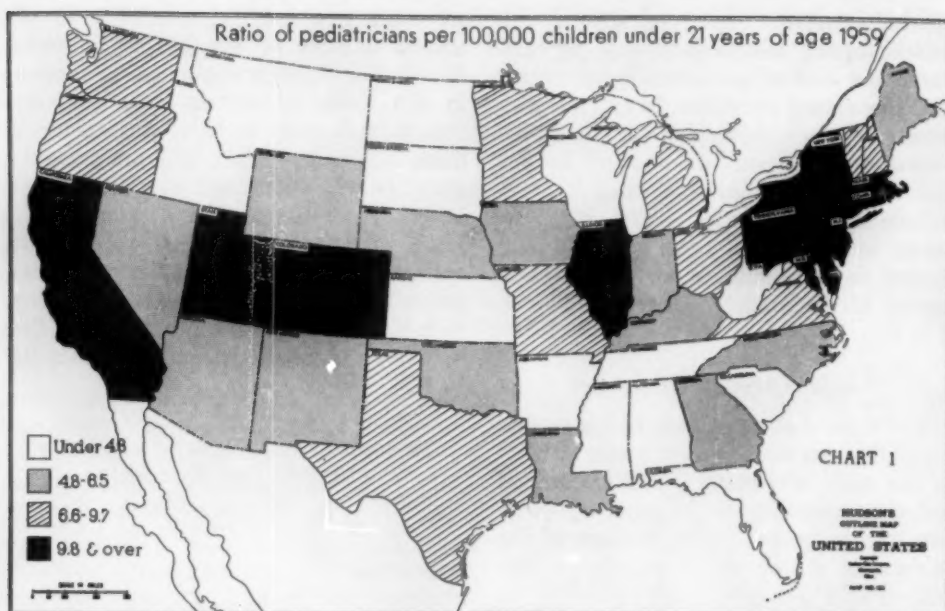


CHART 1.—Ratio of pediatricians per 100,000 children under 21 years of age, 1959

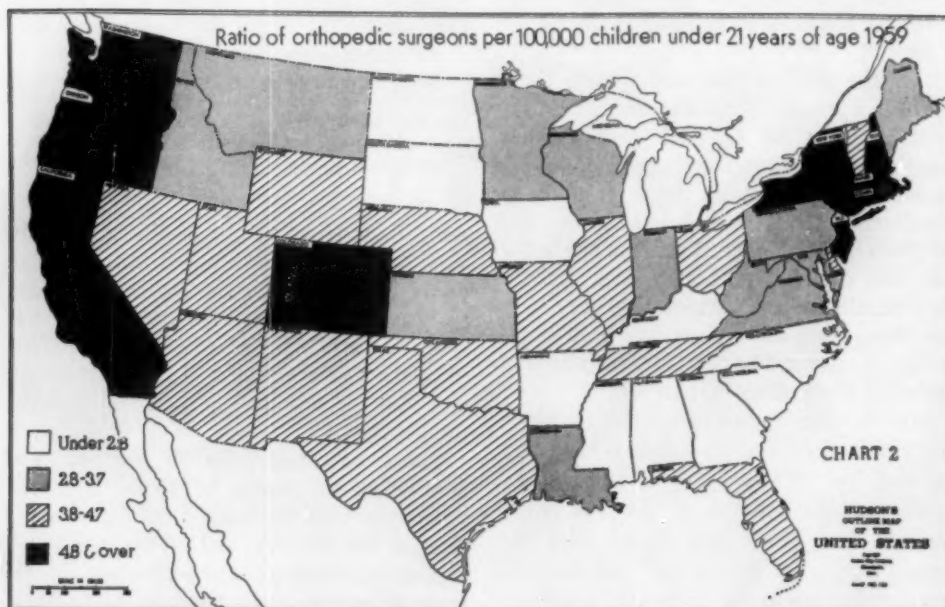


CHART 2.—Ratio of orthopedic surgeons per 100,000 children under 21 years of age, 1959

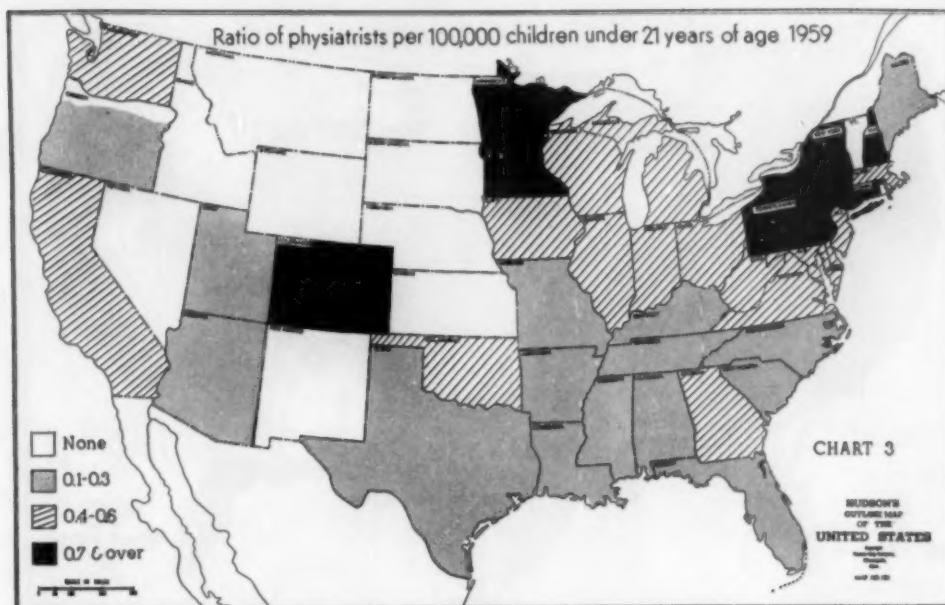


CHART 3.—Ratio of psychiatrists per 100,000 children under 21 years of age, 1959

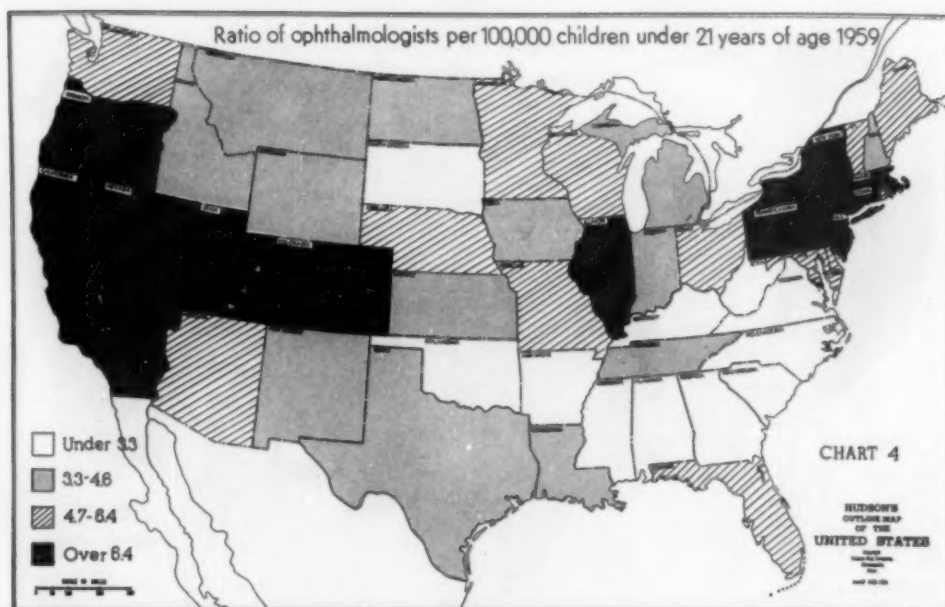


CHART 4.—Ratio of ophthalmologists per 100,000 children under 21 years of age, 1959



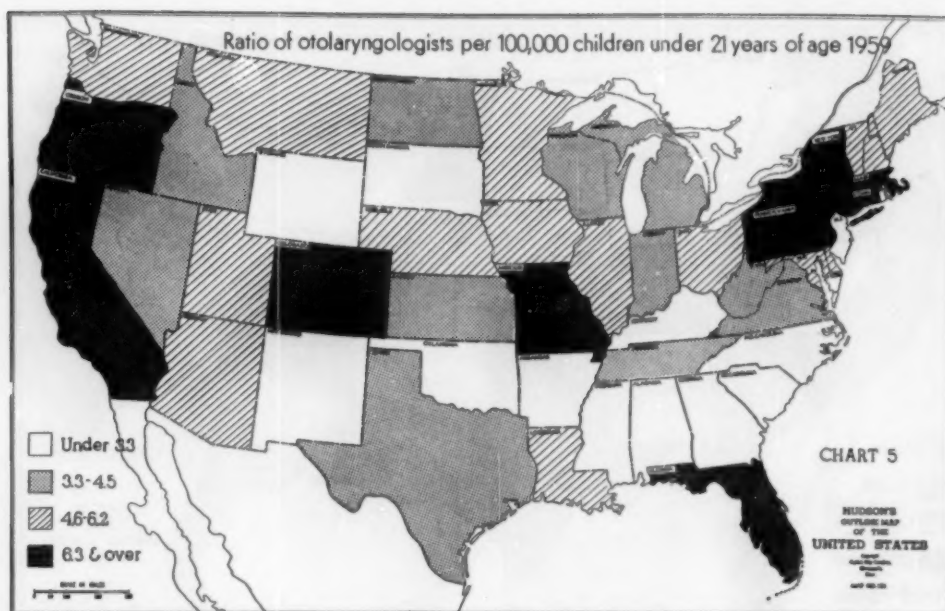


CHART 5.—Ratio of otolaryngologists per 100,000 children under 21 years of age, 1959

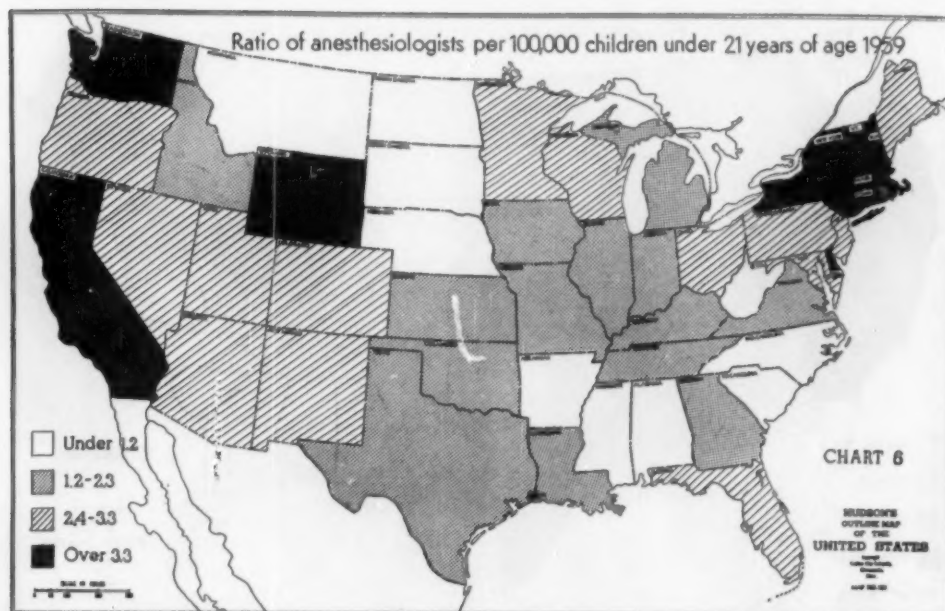


CHART 6.—Ratio of anesthesiologists per 100,000 children under 21 years of age, 1959



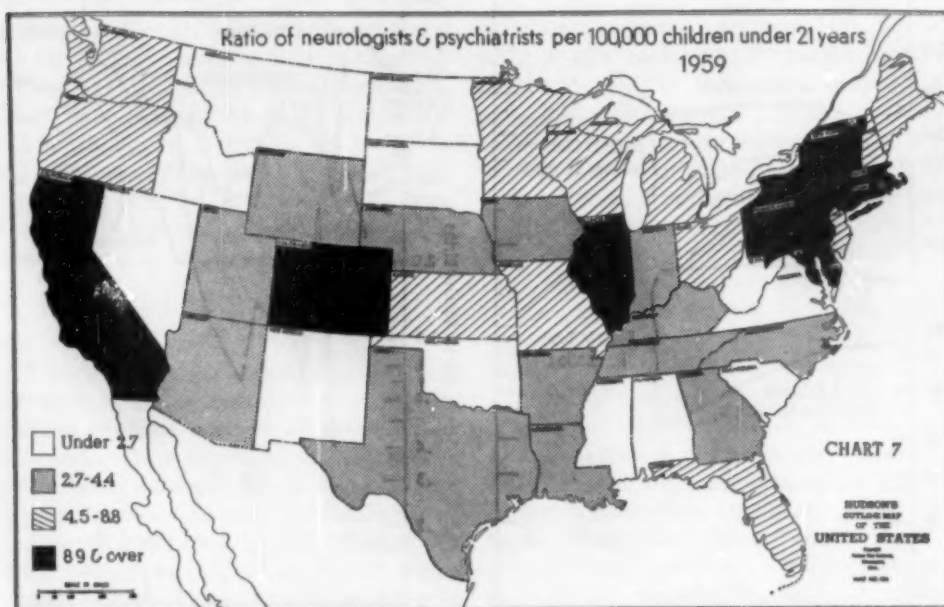


CHART 7.—Ratio of neurologists and psychiatrists per 100,000 children under 21 years, 1959

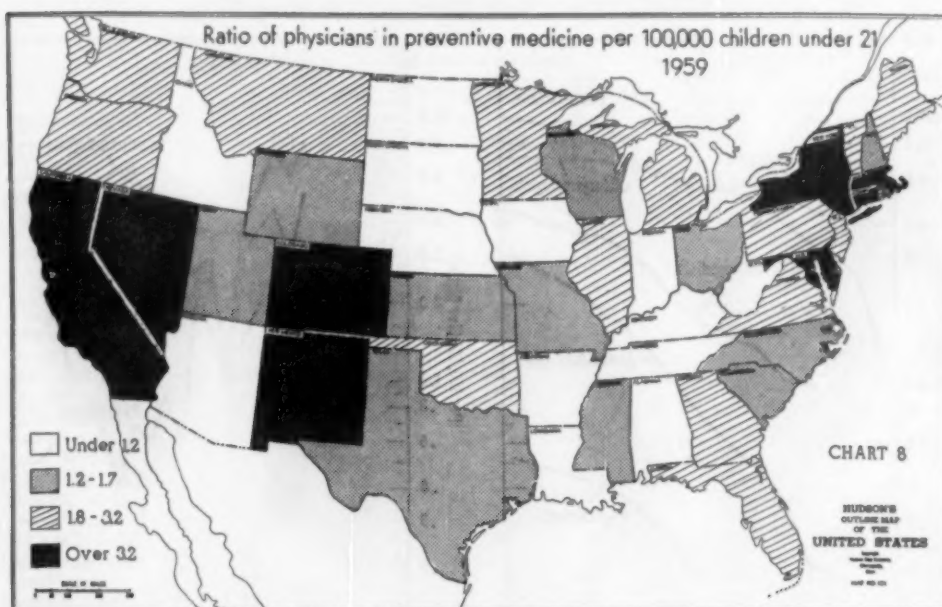


CHART 8.—Ratio of physicians in preventive medicine per 100,000 children under 21, 1959

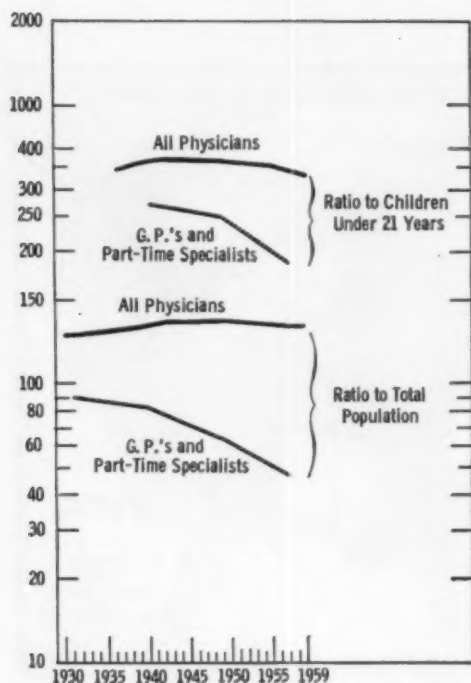


CHART 9.—Ratio of physicians to total population and to children.

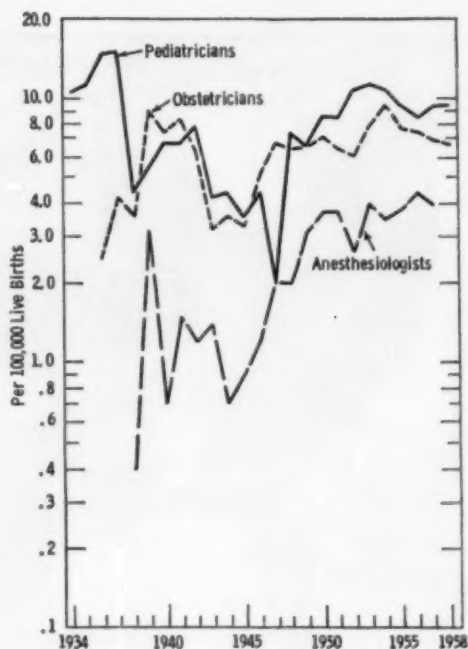


CHART 11.—Ratio of new medical specialists to live births.

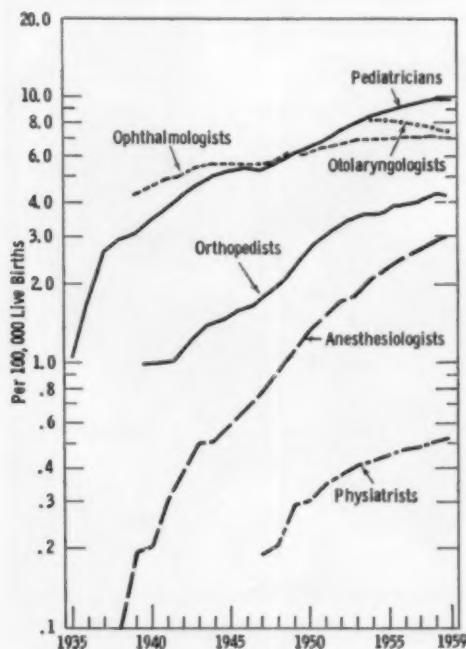


CHART 10.—Ratio of total number of medical specialists to live births.

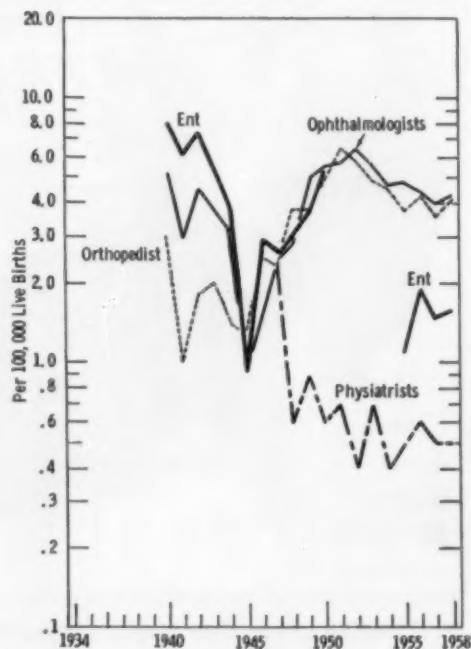


CHART 12.—Ratio of new medical specialists to live births.

medicine and rehabilitation is twentieth on the list and is running a rate of about 60 per cent of residencies filled. However, it should be pointed out that physical medicine and rehabilitation is next to the lowest in regard to percentage of first year and total appointments filled. There were 37 first year appointments and 106 total appointments vacant in September 1958 (13).

#### KNOWN FACTORS IN MOTIVATION IN MEDICAL CAREER SELECTION

A review of factors reported to be of significance in the selection of a career by medical students may be of assistance in considering steps which might be taken to recruit additional physicians into the field of physical medicine and rehabilitation.

According to Schofield (19), "Among the more common and significant factors which lead an individual into the selection of a particular vocational area are: (1) Family tradi-

tion and parental pressures; (2) Social prestige of a vocation; (3) Promise of economic return; (4) Particular demand for personnel; (5) Personal interests, values, and motives; (6) Development of strong identification with another individual who is in a given vocation; (7) Unusual opportunity or encouragement very early in life; (8) Unusual early restrictions or handicaps." Whereas these factors are applicable to the choice of any vocation by any individual, they apply equally well to the field of physical medicine and rehabilitation.

Schofield states that "the faculty of a professional school must foster the evolution of a career as a unique process whereby capacities and skills are optimally adjusted to the opportunities created by social demand. Three methods are basic: (1) the conscientious provision of information regarding the range and nature of career possibilities within a large professional field;

TABLE 2  
NUMBER OF RESIDENCIES BY SPECIALTY—1958-59

TYPE OF SPECIALTY	NUMBER OF APPROVED PROGRAMS	NUMBER OF RESIDENCIES				Total appointments		
		First-year appointments			Per cent filled	Total appointments		Per cent filled
		Filled 9/1/58	Vacant 9/1/58	Filled 9/1/58		Vacant 9/1/58		
Surgery	704	2,019	182	92	5,373	464	92	
Pathology	671	762	272	74	1,811	832	69	
Int. Medicine	595	2,201	253	90	4,842	764	86	
Obst. and Gynec.	477	956	67	93	2,406	194	93	
Radiology	365	520	155	77	1,389	431	76	
Pediatrics	291	864	70	93	1,682	199	89	
Ped. allergy	12	7	...	100	11	...	100	
Psychiatry	288	1,043	287	78	2,777	772	78	
Orthop. surgery	286	341	30	92	1,057	130	89	
Anesthesiology	233	593	97	86	1,132	235	83	
Urology	227	186	45	81	596	133	82	
Gen'l practice	200	429	152	74	592	265	69	
Ophthalmology	165	279	16	95	708	55	93	
Otolaryngology	131	161	23	88	433	78	85	
Neurosurgery	115	79	18	81	304	50	86	
Neurology	113	137	38	78	324	97	77	
Pulmonary dis.	110	189	58	77	281	90	76	
Thoracic surg.	100	86	11	89	205	31	87	
Dermatology	77	117	14	89	295	32	90	
PM and rehab.	67	68	37	65	143	106	57	
Cardiovasc. dis.	59	51	3	94	132	8	94	
Plastic surg.	52	40	6	87	105	14	88	
Gastroenterology	36	43	4	89	295	32	90	
Allergy	22	17	8	68	26	9	74	
Prev. med. and Public Health	21	28	36	44	32	56	36	
Proctology	13	12	3	80	24	5	83	

Source: J. C. Nunemaker, J. Hinman, W. V. Thompson, and H. Neitzel (13).

(2) detection of special talents and encouragement of them; (3) opportunity for first-hand acquaintance with established workers who have evolved different careers within the field." It would appear logical from this that the faculty of any medical school therefore has a responsibility in bringing to its students early in medical school information regarding those fields of medicine in which there is a marked shortage of personnel and in which there is a current great demand for trained physicians. Furthermore, it would seem desirable at the

prestige and social position; (5) scientific interest, research interest, and learning opportunity; (6) the challenge, stimulation, or variety of the work; (7) the psychological returns as a consequence of the work (Table 3). Thus, to apply this to recruitment of new physicians in physical medicine and rehabilitation, it means that careful consideration of each one of these factors in the field to stimulate medical students' interest might be successful in recruitment. A word of caution might be introduced, since of course it is not known that the answers given by students fully represent their real reasons.

In this same study (4) it was found that the main reasons given by medical students for preferring the medical career they selected were: (1) desire for independence (this reason was more common in those going into individual practice) and "to be their own boss"; (2) the better availability of facilities, equipment, technical help, advice, consultation, and less interference with their personal life (these reasons were given by those going into pooled or group practice); (3) the nature of patient contact; (4) the intellectual stimulation. On the other hand the main reasons given by this same group of students for liking a particular field of medicine least were (1) regimentation or hierarchization; (2) unsatisfactory physician-patient relationship; (3) limitation on income or advancement; (4) limitation on clinical material; (5) dislike of work, or monotony and routineness of work; (6) poor opinion of the staff in a field or of the care provided in a field. Thus, to attract more physicians into physical medicine and rehabilitation, consideration should be given to the students' reasons for preferring certain fields and an effort made to incorporate these factors further into psychiatry. At the same time, efforts may need to be made to reduce or eliminate from the field those factors expressed by students for not preferring certain fields of medicine. In this connection, it is of interest that in a study of medical students at the University of Kansas, Becker and Geer (2) found that "patients

TABLE 3

WHAT DO YOU THINK YOU WILL LIKE  
BEST ABOUT BEING A DOCTOR?

	Per Cent
Helping others, being of service, being useful	55
Working or dealing with people	36
Financial returns, security	29
Prestige, social position	27
Scientific interest, research interest, learning opportunity	24
Challenge, stimulation, or variety of work	21
Psychological returns as consequence of work	20
Independence, freedom, being own boss	17
The work itself, things a doctor does	12
Miscellaneous	5
Don't know, all of it	1
No answer	..
	247

Source: D. Cahalan and P. Collette, *Career Preferences of Medical Students in the United States*. University of Chicago: National Opinion Research Center, November, 1956 (4).

time this step is taken, and subsequently, to provide medical students with an opportunity to become well acquainted with the full-time faculty members in those fields which have an acute shortage of personnel.

In the general area of motivation about career decision in medicine, Cahalan and Collette (4) in a study of over 1,000 medical students in 1956 in the United States asked them the question "What do you think you will like best about being a doctor?" The most frequent answers were: (1) helping others, being of service, and being useful; (2) working or dealing with people; (3) the financial return and security; (4) the

with terminal diseases who are a long time dying, and patients with chronic diseases who show little change from week to week, are more likely to be viewed as creating extra work without extra compensation in knowledge or the opportunity to practice new skills. . . . Such cases require the student to spend time every day checking on progress which he feels will probably not take place and to write long progress notes in the patient's chart although little progress has occurred." If this opinion is widely held by medical students, then physical medicine and rehabilitation have a serious handicap to overcome in arousing students' interest. Further efforts will need to be made to

TABLE 4  
RELATIVE VALUE ASSIGNED BY STUDENTS TO  
DIFFERENT SOURCES OF ADVICE ON  
CAREER DECISIONS

SOURCE OF ADVICE	STUDENT OPINION OF SOURCE Value rating	PER CENT OF 1322 STUDENTS CITING SOURCE AS MOST IMPORTANT
Full-time medical faculty	2.0	33
Wife (or husband)	2.0	17
Other MD's (friends or relatives)	2.1	29
Part-time medical faculty	2.3	9
Parent	2.5	10
Friends in medical school	2.7	3

Source: G. G. Reader, Development of Professional Attitudes and Capacities. *J. M. Educ.*, 33 (Part 2): 164-85, Oct. 1958 (18).

TABLE 5  
INFLUENCE OF SOURCES OF INFORMATION ON CHOICE OF INTERNSHIP

	Seniors' ranking	Interns' ranking
Impressions from visits to hospitals	1	1.5
Opinion of instructors who worked in hospital	2	1.5
Informal opinion of fellow students, interns, residents	3	5
Opinion of faculty members	4	3
Opinion of fellow students who visited hospital	5	6.5
Opinions of personal acquaintances among M.D.'s in practice	6.5	8
Opinions concerning prestige of hospital	6.5	4
Brochures descriptive of internship	8	6.5

Source: R. W. Heine, The Internship: Factors in Choice and Level of Satisfaction. *J. M. Educ.*, 35:404-8, 1960 (10).

glamorize the field, its results for patients, and its opportunities for acquiring and applying new knowledge.

The source of advice appears to be an important factor in career selection by medical students and interns. For example, it was found by Reader (18) that full-time faculty members of the medical school had the greatest influence, followed by the student's spouse. Other physicians who were friends or relatives of the students also played a significant role (Table 4). In a study of senior medical students at the University of Chicago and of interns at Billings Hospital, the most influential sources of information regarding internships were impressions from visits to hospitals and the opinion of instructors who had worked in the hospitals (10) (Table 5). To apply these factors to

physical medicine and rehabilitation means that the full-time faculty members in physiatry may be able to play an even greater role in recruitment through close student contacts, through the operation of their clinical service so as to impress medical students and interns favorably, and so as to imbue increased enthusiasm in the alumni of their residency training programs. The use of the system of faculty-advisors or of the elective preceptorship, in which physiatrists may play an active role may be specific devices to foster recruitment.

As is well known, family responsibilities play a role in career selection by medical students (6). For example, a married student, and especially a married student with children, is less likely to go into a specialty



and more likely to go into general practice than is a single student (Table 6). The implication of this fact for the field of physical medicine and rehabilitation is the need for much more generous subsidy for the married trainee with children at the residency level. This fact has significance for both foundations and governmental agencies providing funds for traineeship in physiatry.

The amount of time devoted to a particular field in the curriculum in medical school and the timing of the instruction may also be a factor in recruitment into a particular field. In a study of the medical curriculum of medical schools, Gee and Richmond (9) reported that the field of physical medicine and rehabilitation had the lowest number of average student hours of any

field of medicine. Physiatry had the lowest average number of hours in the third and fourth years, and was among the lowest in the first and second years. It is noteworthy also that data on hours in physical medicine and rehabilitation were reported by only 34 medical schools (Table 7). It is important, however, to emphasize that quantity of instruction is not the only factor. Other factors such as those previously mentioned also play a role.

It is pertinent to point out that most medical students prefer to go into practice, and only a small percentage prefer to take a salaried position on the staff of a hospital, institution, agency, or as a member of the Armed Forces (4). This fact constitutes a distinct handicap in recruitment of new

TABLE 6  
TYPE OF PRACTICE PLANNED BY MALE SENIOR MEDICAL STUDENTS  
BY MARITAL STATUS (PER CENT)

Type of practice	Single	Married	Married with children	Totals
General practice	19	23	39	27
Specialty practice	70	67	54	64
Full-time teaching and/or research	9	8	5	7
Undecided	2	2	2	2

Source: Division of Operational Studies, Association of American Medical Colleges. *Datagrams. J. M. Educ.*, 34:1108-9, 1959 (6).

TABLE 7  
SCHOOL REPORTS OF STUDENT HOURS REQUIRED EACH YEAR IN VARIOUS  
CLINICAL SPECIALTIES

DISCIPLINE	1ST YEAR		2D YEAR		3D YEAR		4TH YEAR		TOTALS	
	Av. no. hours	No. schools	Av. no. hours	No. schools	Av. no. hours	No. schools	Av. no. hours	No. schools	Av. no. hours	No. schools
Medicine	31.8	18	150.4	56	393.7	56	373.4	57	902.2	58
Surgery	16.7	7	36.0	43	295.7	56	272.9	52	573.8	57
Pediatrics	13.6	8	21.4	38	189.1	67	197.3	68	378.9	69
Psychiatry	30.2	54	37.3	66	105.8	68	85.7	61	231.9	68
Obstetrics	7.0	2	16.6	48	101.2	61	134.9	65	229.2	66
Gynecology	2.0	1	13.1	29	79.1	61	118.3	63	188.4	65
Prev. medicine	30.0	21	48.8	56	50.8	47	54.1	40	121.6	65
Neurology	20.0	3	20.4	29	42.7	51	44.5	46	84.1	58
Orthopedics	3.0	2	8.7	10	35.3	53	53.0	50	79.0	58
Urology	4.0	1	4.8	6	32.3	48	41.6	48	62.8	57
Radiology	10.0	11	13.2	26	30.9	54	33.6	44	57.3	62
Dermatology	0.0	0	4.5	10	31.2	52	35.5	49	54.0	63
Ophthalmology	4.0	1	9.4	19	24.8	53	32.5	49	47.7	64
Otolaryngology	3.0	2	5.0	15	23.5	48	33.3	49	44.3	63
Anesthesiology	2.0	2	8.7	12	18.9	47	38.3	38	39.5	62
PM and R	11.8	4	28.0	12	14.7	22	21.1	24	35.5	34

Source: H. H. Gee, and J. B. Richmond, Report of the First Institute on Clinical Teaching. *J. M. Educ.*, 34 (Part 2): 192, 1959.

physicians into physical medicine and rehabilitation (Table 8).

The studies (7, 12) show that by the fourth year of medical school most medical students prefer to specialize in one field of medicine rather than go into general practice (Table 9). The studies (3) show that medicine, surgery, pediatrics, and obstetrics and gynecology are the most frequent fields of specialization preferred; psychiatry and/or neurology, pathology, and "other specialties" (which include physical medicine and rehabilitation) are the least liked (Table 10). In regard to prestige of the individual medical specialties, medical students rank surgery, medicine, neurology, and pathology as having the greatest prestige (18); prestige

ranking by medical students closely parallels ranking by the faculty (Table 11). Reasons given by medical students for preferring a particular specialty include (1) intellectual challenge and learning opportunity; (2) attractiveness or subject matter and aims of the specialty; (3) quickness or certainty of benefit to patients; (4) comprehensiveness of specialty; (5) preference for dealing with the type of patients to be treated; (6) nature of the physician's relationship to the patient (4). Reasons given by medical students for preferring a particular specialty least include (1) lacking intellectual challenge; (2) being uncongenial on subject matter or objectives; (3) offering little personal contact with patients; (4) slow or uncertain benefits

TABLE 8  
MEDICAL CAREER PREFERENCE

Career	Prefer (per cent)	Like least (per cent)
Individual practice	26	1
Individual practice with pooled facilities	31	..
Group practice	30	1
Salaried practice for an in- stitution or industry	2	22
Salaried practice in pri- vate hospital	1	6
Armed forces	1	36
USPHS	..	20
VA	..	12
Other	8	..
No preference	1	1
No answer	..	1
Total:	100	100

Source: D. Cahalan, and P. Collette, Career Preferences of Medical Students in the United States. University of Chicago: National Opinion Research Center, November 1956 (4).

TABLE 10  
FIELD OF SPECIALIZATION PREFERRED

Field of specialization	Most preferred (per cent)	Least liked (per cent)
Internal medicine	30	1
Surgery	22	11
Pediatrics	10	5
Obstetrics and gynecology	10	7
Psychiatry and/or neurol- ogy	8	13
Orthopedics	2	3
Pathology	2	11
Ophthalmology	1	4
Otolaryngology	..	5
Public health	..	6
Other specialties	5	27
Can't decide	10	7
Total:	100	100

From: D. Cahalan; P. Collette; and N. A. Hilmar, Career Interests and Expectations of U.S. Medical Students. *J. M. Educ.*, 32:557-63, 1957 (3).

TABLE 9  
PLANS FOR LATER CAREERS, ACCORDING TO CLASS  
IN MEDICAL SCHOOL

EXPECT TO DEVOTE MOST OF WORKING TIME TO:	PERCENTAGE IN EACH CLASS			
	1st yr.	2d yr.	3d yr.	4th yr.
General practice	60	56	39	16
Specialty practice	35	41	56	74
Other*	5	3	5	10
No. of Students	75	73	82	76

\* Teaching, research, etc.

Source: R. K. Merton, G. G. Reader, and P. L. Kendall, *The Student-Physician*. Cambridge, Mass.: Harvard University Press, 1957 (12).

to patients. If these reasons reflect the true bases for decision-making by medical students, they may provide leads for the field of physical medicine and rehabilitation.

A number of studies of medical students by class in medical school show that a marked shift occurs in the students' thinking about their careers as they progress from class to class. These shifts in thinking are of several types. One type consists of a shift from the predominant choice of a rotating internship among first-year students toward the selection of straight internships (medicine, surgery, pediatrics, obstetrics) by third-year students (12) (Table 12). A second type consists of a shift from the predominant choice of general practice

TABLE 11  
STUDENTS AND FACULTY RATINGS OF  
PRESTIGE OF SPECIALTIES

Specialty	Ranking by students	Ranking by faculty
Surgery	1	1
Internal medicine	2	2
Neurology	3	3
Pathology	4	5
Pediatrics	5	7
Obstetrics	6	4
Radiology	7	7
Ophthalmology	8	7
General practice	9	10
Otolaryngology	10	9
Psychiatry	11	11
Dermatology	12	12

Source: G. G. Reader, Development of Professional Attitudes and Capacities. *J. M. Educ.*, 33 Part 2: 164-85, 1958 (18).

among first-year students toward the selection of a specialty practice by fourth-year students (4, 7, 12) (Table 9). A third type consists of multiple shifts among the individual medical specialties (8, 11) (Table 13). Gee and Glaser (8) have pointed out that there is a considerable degree of uncertainty regarding specialty choice during the 4 years of medical school (Table 14). Finally, a follow-up study of graduates of the University of Buffalo Medical School shows that physicians continue to change from general practice to full-time specialization during their active professional careers (20).

#### DISCUSSION AND SUGGESTIONS

From the foregoing facts, it is clear that there is a low availability of physiatrists in the United States, and that the rate of increase in new physiatrists is not keeping up with the increase in population. Added to the demand for physiatrists is the constant increase in the population 65 years and over, with its greater frequency of chronic illness and disability.

Specific suggestions for the field of physical medicine and rehabilitation to assist in the recruitment of physiatrists include the following:

1. The need for medical educators to bring to medical students early in medical school and to the practicing medical profession information regarding current major

TABLE 12  
INTERNSHIP CHOICES, ACCORDING TO  
CLASS IN MEDICAL SCHOOL

TYPE OF INTERNSHIP	PERCENTAGE IN EACH CLASS		
	1st Year	2d Year	3d Year
Rotating	72	59	49
Straight medical	10	17	18
Straight surgical	5	1	10
Straight pathology	..	3	1
Mixed med. and surg.	11	11	13
Obst. and Gynec.	..	1	2
Straight pediatrics	1	3	5
Other	1	5	2
No. students	79	76	83

Source: R. K. Merton; G. G. Reader; and P. L. Kendall, *The Student-Physician*. Cambridge, Mass.: Harvard University Press, 1957 (12).

health needs in our country, and regarding medical manpower availability and shortages. As a corollary of this, the need for medical educators to play an even more active role in counseling of medical students regarding their future medical career.

2. The need for full-time faculty members of all medical schools to establish and maintain an even closer relationship with medical students and with graduates of medical schools, since full-time faculty members seem to have the greatest influence on medical students' choice of career.

3. The need for departments of physical medicine and rehabilitation to maintain

even closer contact with medical students, rotating interns, and physicians in general practice. Methods by which this may be done include (a) the use of full-time physiatrists in medical schools as faculty advisers to medical students; (b) the use of full-time and part-time physiatrists in medical schools as preceptors to medical students; (c) the provision of more summer fellowships for medical students; (d) efforts to incorporate physical medicine and rehabilitation as part of rotating internships (since university hospitals usually do not have rotating internships, a plan for affiliation might be a possibility); (e) the conduct of institutes for physicians in general practice; (f) when general practitioners refer patients to physiatrists and to departments of physical medicine and rehabilitation for consultation, the use of the consultation as an opportunity to interpret the field of physical medicine and rehabilitation. In regard to increased work with physicians in general practice, the

American Academy of General Practice may present one channel for this.

4. The need for physiatrists and for departments of physical medicine and rehabilitation to "glamorize" its accomplishments in patient care, so that medical students will better understand its favorable aspects.

5. The need to increase the proportion of time in the medical school curriculum devoted to the teaching of physical medicine and rehabilitation, and to increase the teaching of this subject throughout the 4 years of medical school.

6. The need for development and support of a department of physical medicine and rehabilitation for those medical schools presently without one.

7. The need for more generous support of fellowships for married residents with families, to make it possible for them to take training in physical medicine and rehabilitation.

TABLE 13

PROPORTIONS OF CHANGES INTO A NEW CHOICE FROM ALL PREVIOUS SOURCES  
THROUGHOUT THE FOUR YEARS OF MEDICAL SCHOOL (PER CENT)

SWITCHED FROM:	SWITCHED TO:						
	Medicine	Surgery	Ob.-Gyn.	Pediatrics	Psychiatry	Other	No Choice
Medicine	...	44	32	42	40	30	36
Surgery	16	...	19	7	2	15	27
Obst.-Gynec.	5	8	...	4	..	3	6
Pediatrics	11	6	14	...	13	6	12
Psychiatry	6	...	2	4	..	8	6
Other	9	12	3	5	5	...	13
No choice	53	30	30	38	40	39	...
Total no. changes	371	180	114	116	45	140	179

Source: D. B. Kandel, W. A. Glaser, and J. Emery, Changes in Career Expectations of Medical Students. Paper read at the Fifty-third Annual Meeting of the American Sociological Society, August 28, 1958 (11).

TABLE 14

STUDENT CERTAINTY WITH REGARD TO SPECIALTY CHOICE

CERTAINTY OF SPECIALTY CHOICE	PER CENT OF STUDENTS IN EACH CLASS				Total
	1st Yr.	2d Yr.	3d Yr.	4th Yr.	
Almost certain	15	7	21	37	20
Choice tentative, change unlikely	13	21	22	24	20
Choice reflects present feeling	46	45	44	26	40
Little confidence in permanence of choice	18	18	9	9	13
No response	8	9	4	3	6
Total number	251	287	240	262	1,040

H. H. Gee and R. J. Glaser, The Ecology of the Medical Student. *J. M. Educ.*, 33 (Part 3): 255, 1958 (8).



A final suggestion is related to the method of teaching physical medicine and rehabilitation to medical students. Additional opportunities for the introduction of content regarding physical medicine and rehabilitation exist where a medical school has or can make use of a family health teaching program or an organized community home care program. In both of these approaches, the medical student is assigned to work with a family. Since many families now have a family member with chronic illness, the use of a physiatrist in these teaching programs would be helpful in interpreting the contribution of physiatry in caring for the medical and health needs of the family in the home. Pooling resources, teaching faculty, and curriculum time with other departments of the medical school and teaching hospital (such as internal medicine, pediatrics, neurology, psychiatry, orthopedic surgery, preventive medicine, as well as with nursing, social work, and nutrition of the teaching hospital), would appear to be a more effective method of bringing the concept of comprehensive patient care to the medical student, intern, and resident, and a more effective method of demonstrating the contribution which the field of physical medicine and rehabilitation is able to make to meet the health needs of patients and their families.

Finally, it must be admitted that the field of physical medicine and rehabilitation is not the only field of medicine with a clear-cut need for additional physicians. In a recent article, Powers, Darley, and Opperman (14) state that in 1958, the first-year enrollment in medical schools in the United States was 8,130 students. They estimate that, by 1975, 10,500 medical graduates will be needed. They state that by 1971, 21 new 4-year medical schools will be needed, and that by 1976 an additional twelve will be needed.

## REFERENCES

1. American Medical Association. Medical Education in the United States and Canada. *J.A.M.A.*, 171:1507-79, 1959.
2. BECKER, H. S., and GEER, B. The Fate of Idealism in Medical School. *Am. Sociol. Rev.*, 23:50-56, 1958.
3. CAHALAN, D.; COLLETTE, P.; and HILMAR, N. A. Career Interests and Expectations of U.S. Medical Students. *J. M. Educ.*, 32:557-63, 1957.
4. CAHALAN, D., and COLLETTE, P. Career Preferences of Medical Students in the United States. National Opinion Research Center, University of Chicago, November, 1956.
5. Directory of Medical Specialists. Volume 9. Chicago, Illinois: A. N. Marquis Co.
6. Division of Operational Studies, Association of American Medical Colleges. Data-grams. *J. M. Educ.*, 34:1108-9, 1959.
7. FUNKENSTEIN, D. H. The Implications of Diversity. *J. M. Educ.*, 33 (Part 2):34-58, 1958.
8. GEE, H. H., and GLASER, R. J. The Ecology of the Medical Student. *J. M. Educ.*, 33 (Part 2): 255, 1958.
9. GEE, H. H., and RICHMOND, J. B. Report of the First Institute on Clinical Teaching. *J. M. Educ.*, 34 (Part 2): 192, 1959.
10. HEINE, R. W. The Internship: Factors in Choice and Level of Satisfaction. *J. M. Educ.*, 35:404-8, 1960.
11. KANDEL, D. B.; GLASER, W. A.; and EMERY, J. Changes in Career Expectations of Medical Students. Paper read at the Fifty-third Annual Meeting of the American Sociological Society, August 28, 1958.
12. MERTON, R. K.; READER, G. G.; and KENDALL, P. L. The Student-Physician. Cambridge, Mass.: Harvard University Press, 1957.
13. NUNEMAKER, J. C.; HINMAN, J.; THOMPSON, W. V.; and NEITZEL, H. Graduate Medical Education in the United States. *J.A.M.A.*, 171:665-74, 1959.
14. POWERS, L.; DARLEY, W.; and OPPERMAN, K. C. National Goals for the Construction of Medical School Faculties. *J. M. Educ.*, 35:108-20, 1960.
15. Public Health Service, U.S. Department of Health, Education, and Welfare. Health Manpower Source Book. Section 9. Physicians, Dentists, Nurses. Washington, D.C.: U.S. Government Printing Office, 1959.
16. Public Health Service, U.S. Department of Health, Education, and Welfare. Physicians for a Growing Nation. Washington, D.C.: U.S. Government Printing Office, 1959.



17. Public Health Service, Federal Security Agency. Health Service Areas. Estimates of Future Physician Requirements. Washington, D.C.: U.S. Government Printing Office, 1949.
18. READER, G. G. Development of Professional Attitudes and Capacities. *J. M. Educ.*, **33** (Part 2): 164-85, 1958.
19. SCHOFIELD, W. Vocational Choice and Career Evolution. *J. M. Educ.*, **33** (Part 2): 18-24, 1958.
20. TERRIS, M., and MONK, M. Changes in Physicians' Careers: Relation of Time after Graduation to Specialization. Chapter 37 in *Patients, Physicians, and Illness*, pp. 361-65. Glencoe, Illinois: The Free Press, 1958.

# A Survey of the Teaching of Accident Prevention in Departments of Preventive Medicine

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A short questionnaire on the teaching of accident prevention was formulated and sent to chairmen or heads of departments of Preventive Medicine in medical schools in Canada, Puerto Rico, and the United States. The survey was completed in 1959, and replies were received from 90 of 97 schools. In three schools there was no Department of Preventive Medicine, which reduced the total to 87. The position of department head was vacant in four instances, and questionnaires were unfilled, decreasing the total for analysis to 83.

*Discussion of accidents.*—The first question, "Are accidents discussed in preventive medicine courses?" resulted in 68 affirmative and fifteen negative answers. Seven schools answering "Yes, we teach accidents" also indicated that additional material on the subject would be taught in the near future. The fifteen schools answering "No" were further queried, "If no, do you anticipate adding the subject?" Four schools anticipated adding the subject in the near future, six did not, two might possibly add it, and three gave no answer. The remainder of the information available is here limited to affirmative answers.

The teaching of accident prevention was limited principally to 3 hours or less. A period of 1 hour was utilized by twenty schools, 2 hours were used by seventeen schools, and fifteen reported 3 hours.

Topics in a course of preventive medicine are numerous, and the total hours of teach-

ing time allotted departments is not great compared with those in basic science departments such as anatomy or pathology or in the clinical subjects of medicine, surgery and obstetrics. Unfortunately, the question of total hours available was not asked, and, had it been, assessment would have been difficult, because courses in preventive medicine in any school may cover as many as 3 of the 4 years. Each department head must decide on the importance that the topic "accidents" plays considered against the number of hours available to him in teaching preventive medicine. With the exclusion of the "variable" and "no answer" designations, the mean number of hours devoted to teaching of accident prevention in departments of Preventive Medicine is 2.7 or, roughly, 3 hours. This is somewhat better than one might have anticipated. Some schools put more emphasis on the subject, and others not previously including it indicated that the topic would shortly be introduced. It goes without saying that accidents are important as a cause of death and disability. *Accidents are number one in the first ten causes of death in standard age groups from ages one through 34* and should receive additional attention in preventive medicine teaching.

*Teaching method.*—The specific teaching methods are shown in Table 1. Lecture was used as a teaching tool 3 times more frequently (60 schools) than the next highest, the seminar (eighteen schools). A field trip, a family study, a clinic, a clinical emergency

\* Professor and Head.

service, and an epidemiological laboratory session were used occasionally.

Audiovisual aids inclusive of other methods were utilized in 41 schools. Slides and movies were commonly used (21 and twelve schools, respectively).

*The teacher and the method.*—Information concerning the teacher indicated that department staff was responsible in most schools for teaching accident prevention in preventive medicine courses. Thus, of 68 schools which included accident prevention in the course, 46 used staff solely, fourteen utilized staff and a guest, and five employed a guest, whereas in one staff and students participated.

TABLE 1  
SPECIFIC TEACHING METHODS  
AND NUMBER OF PARTICIPATING SCHOOLS

Teaching method	No. schools
Lecture	60
Seminar	18
Field trip	3
Family study	1
Clin. emerg. serv.	5
Epid. lab.	1

Where lecture alone was used, staff was responsible for teaching in 32 of 46 schools, whereas staff was involved in only five of fourteen where staff and guest were implicated. When guests were solely responsible for the teaching of accident prevention, only the lecture method was used. When the lecture and seminar method was employed, staff and guest accounted for six schools, while in four only staff participated. Schools using the seminar method alone numbered five, and staff accounted for all of them.

*Medical year teaching of accident prevention occurs.*—The years in which accident prevention was taught are shown in Table 2. By single years, the sophomore year is the most frequent choice (21 of 41 schools);

following in order are junior, eleven; senior, seven; and freshman, two. In multiple years, the combination of sophomore and junior years came first and, in decreasing order, sophomore-senior, 5; junior-senior, 4; freshman-sophomore, 4; and freshman-junior-senior, 1.

#### SUMMARY

Accidents are the most important cause of death between the ages of 1 through 34 years and take an enormous toll in disability, thus warranting greater attention in the

TABLE 2  
MEDICAL SCHOOL YEAR TEACHING OF  
ACCIDENT PREVENTION OCCURS

Years	Class	No. schools
Single	Freshman	2
	Sophomore	21
	Junior	11
	Senior	7
Multiple	Freshman, sophomore	4
	Freshman, junior, senior	1
	Sophomore, junior	9
	Sophomore, senior	5
	Junior, senior	4
	No information	4
Total:		68

teaching of preventive medicine. An analysis is presented concerning the teaching of accident prevention in the Departments of Preventive Medicine in most of the medical schools of Canada, Puerto Rico, and the United States.

#### SUGGESTED AID FOR TEACHING OF ACCIDENT PREVENTION

Principal Types of Accidents—Selected References. A Teaching Aid for Medical Schools. Prepared by U.S. Department of Health, Education, and Welfare, U.S.P.H.S., Division of Special Health Services, Accident Prevention Program, 1958.

# Comprehensive Medicine and Medical Student Attitudes\*

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## INTRODUCTION

The past decade has witnessed growing interest in the teaching of comprehensive medicine. The proponents of comprehensive medicine are beginning to report their attempts at an assessment of the effects of such teaching on medical student knowledge, skill, and attitude. Whereas the data with respect to student knowledge and skill are as yet inconclusive, there is at least one published report (1), and we have additional private communications which suggest that student attitudes toward comprehensive medical concepts are somewhat negative. The causes for this adverse reaction are still rather unclear; certainly any curriculum innovation which seeks to modify the existing face of medicine will tend to encounter some faculty resistance, and may range from apathy to outright opposition. Medicine, as any other social institution, is a structure-in-evolution reflecting points of view varying from the extreme conservative to the extreme liberal. The medical student, confronted with a range of faculty opinion as to "what medicine ought to be," must in some way select a point of view he will uphold. In part, then, the acceptance of any curricular innovation may be determined by ascertaining how the students feel about it. It

goes without saying that medical student acceptance of comprehensive medicine, or any other new educational program, does not prove that it makes them better physicians or that it leads to improved patient care.

The Comprehensive Medicine Program at Temple University School of Medicine is now in its seventh year. It began as an aspect of the General Medical Clinic experience in the senior year. It has evolved into a 4-year program with instruction at each year level. In the freshman year, 16 hours of Correlation Conference are taught by an internist-psychiatrist team; patient presentations correlate with the subject matter of the basic sciences being studied at the time. A similar Correlation Conference is taught on a biweekly basis in the sophomore year, again by teams of internists and psychiatrists. Two additional sophomore year courses are offered to prepare the student for later clinical experiences. A 16-hour Behavioral Sciences course is given, in which several key concepts in the behavioral sciences are described by a psychologist, a sociologist, and an anthropologist, with a concluding emphasis on their relevance to clinical medicine. The course is introduced with lectures on the scientific and value base of clinical medicine. In the second semester of the sophomore year, sixteen lectures on the doctor-patient relationship explore the structure and dynamics of physician-patient interaction; emphasis is laid on the development of the physician's sensitivity to his own emotional responses vis-à-vis the patient as an aid in understanding and managing

\* Temple's Comprehensive Medicine Program is supported by the Commonwealth Fund, and in part by a grant from the National Institute of Mental Health.

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the patient. In the junior year, each student participates in the General Practice Clinic by managing two chronically ill or disabled patients throughout the year. Additionally the General Practice Clinic has in recent years been enlarged to incorporate a Family Care Program. Thus, before the student comes to the senior year, he has had to cope with both the frustration of managing difficult patients and/or the complexity of handling a family as a unit. In the senior year, the student spends 6 weeks in the Comprehensive Medicine Clinic (CMC) in which he sees a variety of relatively unselected out-patients. He is supervised by teams of internists and psychiatrists whose role is to act as consultants as well as teachers and supervisors. The students are in charge of a daily afternoon conference, and here too the staff act as consultants for the student group. An effort is made to allow the student to play the physician role as much as possible; he has his own office and equipment for the length of his stay and schedules his patients for return visits himself, sometimes accompanying them to the specialty clinics for more specialized consultation. Some in-patient teaching is done when the CMC staff supervises one of the general medical wards on a rotating basis during the year. Beyond these teaching and clinical services, a growing research program currently focusing on the efficacy of comprehensive medical care is being developed by the Comprehensive Medicine faculty. Earlier reports (2-4) have described the philosophy and development of the teaching program; the present report describes a study of senior medical student attitudes to various aspects of the Comprehensive Medicine Program. Data for the classes of 1958 and 1959 will be presented.

#### PROCEDURE

Prior to the development of the Comprehensive Medicine Questionnaire, a series of open-ended interviews with some senior students was conducted. The data obtained led to the formulation of several general and

specific questions which were included in the questionnaire. Because of the variety of opinions, several open-ended questions and spaces for free comment were incorporated in the questionnaire. The three general areas of inquiry were: (a) the idea and usefulness of comprehensive medicine, (b) the adequacy of preparation for comprehensive medicine, and (c) specific judgments about various aspects of the student's experiences in the Comprehensive Medicine Clinic itself. For the class of 1958 the questionnaire was so timed that it was submitted to each group of seniors at the end of their 6 weeks' rotation through the clinic. Since certain trend effects were noted as the senior year progressed, the same questionnaire was submitted to the class of 1959 at the completion of the senior year just prior to graduation. To minimize the possible bias inherent in having the CM group run the survey, the respondents were asked to remain anonymous. Since this made the survey essentially a voluntary effort, the results do not reflect the attitudes of the entire class. In the class of 1958, 80 out of 118 students responded; in the class of 1959, when the survey was made just prior to graduation, 50 out of 118 students responded. The Questionnaire is presented below.

#### COMPREHENSIVE MEDICINE QUESTIONNAIRE

*Instructions.*—Most of the questions asked below may be answered by underlining the rating corresponding most closely with your opinion. Use the spaces for COMMENTS if you would like to amplify your answer; use the back of these sheets if necessary. Thank you.

##### I. The Idea of Comprehensive Medicine:

The Idea of Comprehensive Medicine is very much in vogue in medical education these days. Some feel that it amounts to a major advance in medicine; others feel that it is much ado about nothing. On the basis of your experience in medical school:

- a) How clear is your conception of Comprehensive Medicine? (1) Very clear (2) Moderately clear (3) Moderately unclear (4) Very unclear
- b) How useful have you found this concept in work with patients? (1) Very



useful (2) Moderately useful (3) Not very useful (4) Not at all useful

- c) Have you found this experience useful in working with patients who have marked functional components or who are difficult management problems? (1) Very useful (2) Moderately useful (3) Not very useful (4) Not at all useful

- d) Comments on the Idea of Comprehensive Medicine:

## II. Adequacy of Preparation for Comprehensive Medicine:

Most of your medical school experience in the first 2 years was spent in the basic physical sciences. The remaining two years were spent in the various clerkships on the specialty clinics and ward services.

- a) Do you feel that the curriculum of the first two years was an adequate preparation for your work in the General Practice and Comprehensive Medical Clinics? (1) Very adequate (2) Moderately adequate (3) Not very adequate (4) Not at all adequate

- b) Do you feel that the psychiatric courses you had during the first 2 years were very helpful as preparation for the Comprehensive Clinics? (1) Very helpful (2) Moderately helpful (3) Not very helpful (4) Not at all helpful

- c) What changes, if any would you recommend in the curriculum of the first 2 years in order to insure a more adequate preparation for the Comprehensive Clinics? (Use other side of this page if more room is needed.)

## III. The Comprehensive Medical Clinic Experience:

- a) In terms of your medical development, how would you rate your CMC experiences with the other clinics you attended? (1) The best (2) Better than most (3) Average (4) Not as good as most

- b) As you know there is no selectivity in the patients seen in the CMC. Do you feel that this policy makes for a good or bad learning experience? (1) Very good (2) Good (3) Not so good (4) Bad

- c) Did you feel that you got enough supervision in the CMC? (1) Very adequate (2) Adequate (3) Not too adequate (4) Insufficient

- d) What was the quality of the supervision you received in the CMC? (1) Very good (2) Good (3) Average (4) Poor

- e) Are patients really treated more "comprehensively" in the CMC compared to the other out-patient clinics? (1) Much more (2) Slightly more (3) As much (4) Less than most

- f) Did you feel that the 3-4 P.M. conference contributed significantly to your understanding of Comprehensive Medicine? (1) Very much (2) Moderately (3) Not at all (4) Actually harmful

- g) What is your most striking recollection of your month in the CMC?

- h) What changes would you recommend in the operation of the CMC?

## IV. General Comments (Please write in any comments you may have on the Comprehensive Medicine Program or any aspect relating to it.)

### RESULTS

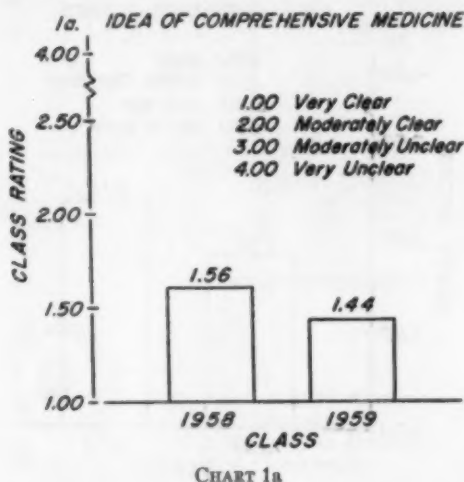
#### The Idea and Usefulness of Comprehensive Medicine (CM)

The results for the three questions in this area of inquiry are presented graphically in Charts 1a, b, and c. Both the '58 and '59 classes felt that the clarity of the CM concept fell between "Very Clear" and "Moderately Clear." There was no difference between the classes in this respect. Both classes rated the clinical usefulness of the CM approach between "Very" and "Moderately Useful." There was no significant difference between the mean class ratings of 1958 and 1959. In addition to ratings, general comments on the idea and usefulness of CM were made. Beyond the content of the comments, it is interesting to note the high incidence of the comments. In each class more than three-quarters of the respondent made comments, many of them at length. This willingness to share thoughts and impressions was also manifested in all the

areas of the questionnaire set aside for "General Comments."

The comments about the idea and usefulness of CM fell into three general categories: (a) positive comments which indicated that CM was "most adequate medical care," "the true medicine" and "essential to general practice"; (b) negative comments which stressed the "impracticality of the time required," the "excess of psychiatry," and the "unreceptivity of the patients"; (c) mixed comments, the most frequent type, paid tribute to the soundness of the concept but qualified the praise, usually by objecting

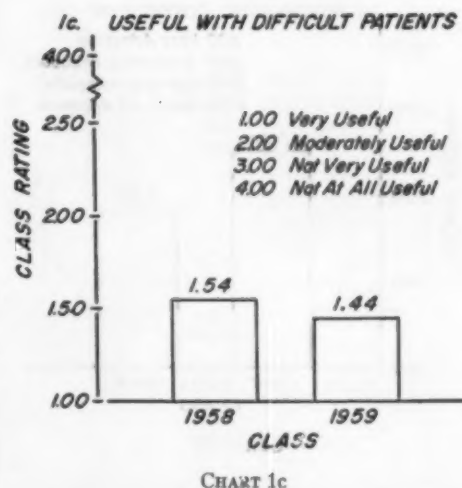
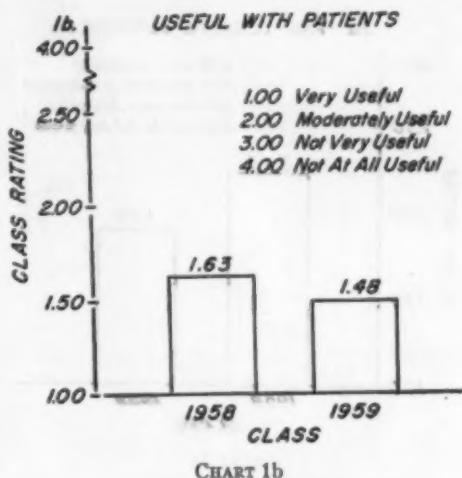
tion for the CM program. The class of 1958 was less positive, and the mean rating somewhat less than "Moderately Adequate." Chi-square analysis indicated that the class differences were statistically significant for both questions. There was clearly an im-



to the time required for an adequate work-up. Certain comments, "It's no longer a question of whether a patient is crazy but how crazy," and "We are taught by internists and psychiatrists, where is the comprehensive physician?" reflected student sensitivity to the concept and the program.

#### Adequacy of Preparation for Comprehensive Medicine

Charts 2a and b present ratings relating to the general preclinical preparation and specific psychiatric preparation. The class of 1959 felt that the general preclinical curriculum and the psychiatric courses were better than "Moderately Adequate" as prepara-



provement between 1958 and 1959 in student attitudes toward the preclinical curriculum as an adequate preparation for comprehensive medical experiences in the clinical years.

Asked to recommend changes in the pre-clinical curriculum, student comment fell

into two general categories: (a) better preparation for clinical work and (b) more theoretical and factual work in the CM area. Comments relating to better clinical preparation were by far the most numerous; demands for "more and earlier patient

CMC experience made evident student deficiencies in these areas; this was also reflected by the number who voluntarily read texts on interviewing recommended to them. It is noteworthy that many more of the class of 1959 than the class of 1958 felt that no changes were needed.

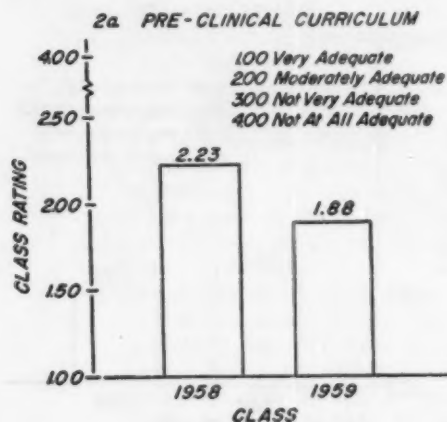


CHART 2a

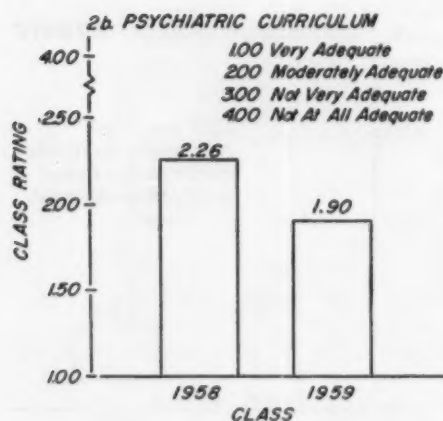


CHART 2b

contact," "more practical work in psychiatry," "more emphasis on practical management," and "more instruction in interviewing" were typical and recurrent. The students demanded more material on "functional-organic correlations," "disease-personality interactions," and "more psychosomatic medicine lectures," etc. The

### The Comprehensive Medicine Clinic Experience

Charts 3a, b, c, d, e, and f present the mean ratings made on six questions relating to the clinic experience itself. With one

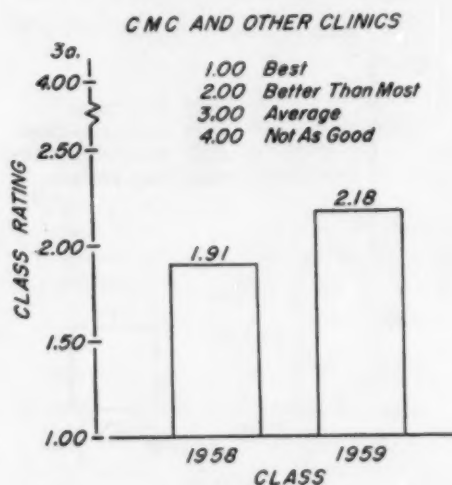


CHART 3a

exception, there are no significant differences in the ratings made by the two classes. Both samples tended to rate the Clinic as "Better than Average" in comparison with other outpatient services. Asked about the value of nonselectivity of patients in the CMC, the only general medical clinic of the Temple University Medical Center, students rated this feature as better than "Good." In judging whether the CMC was "really more comprehensive" than other services, students in both years felt that it was "Much More" comprehensive. Both classes rated the afternoon conference of "Moderate" value in improving their understanding and management of patients.

**Most striking recollection of the CMC.**—The students' descriptions of their most striking recollections of their service in the CMC were analyzed into five general areas:

a) Increased understanding of patients:

mission of diverse physical symptoms via a psychiatric approach" were made.

b) Learning the realities of medicine: Many recollections indicated that certain student preconceptions of medical practice

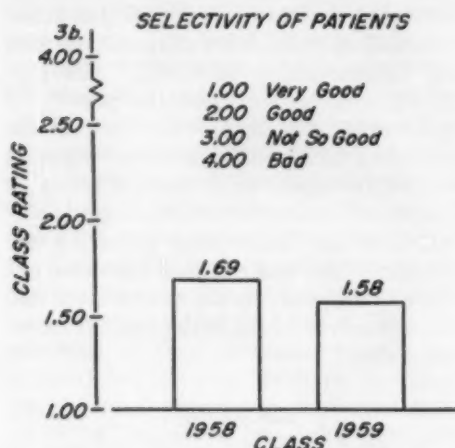


CHART 3b

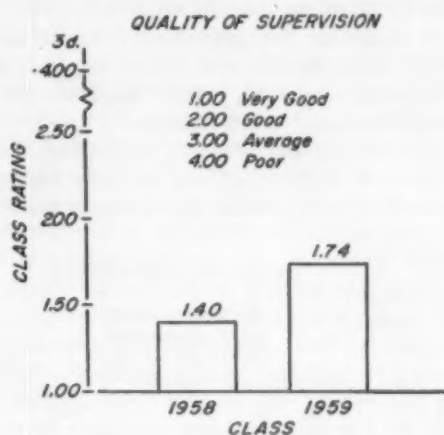


CHART 3d

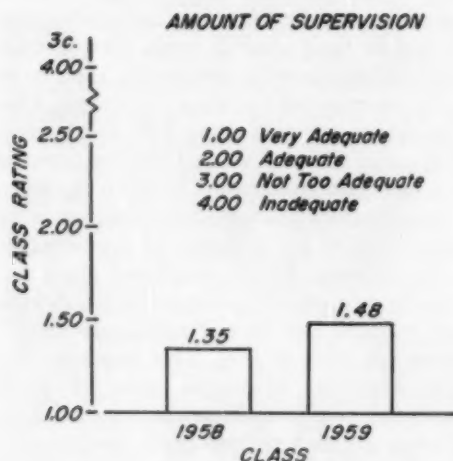


CHART 3c

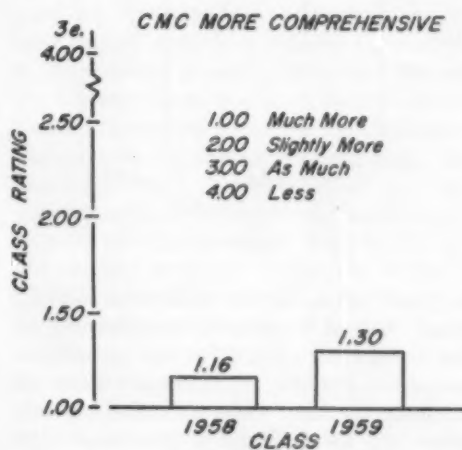


CHART 3e

Many students in both samples commented on the new insights they gained into patients and their complaints. Comments such as I "saw the patient as a whole," "saw the importance of psychiatric aspects in organic illness," "realized that more patients have emotional than organic illness," "saw re-

were not borne out by experience. Comments on the large number of patients requiring more than a purely biological approach were most common. Disappointments in facing these realities were also common; such comments as: "became discouraged with so many functional patients," "the bitterness I felt spending so much time with

patients who didn't appreciate it," "the unwillingness of so many local MD's to take pains with their patients" were typical.

c) Personal growth: Many recollections reflected the student's pleasure in becoming more secure in the physician role. Comments such as: "I played the MD role to the hilt," "developed a new ability to make a functional diagnosis," and "made an unusual diagnosis" were common.

d) and (e) Praise and Criticism of the CMC: A number of recollections either praised or criticized the operational features

of the Freshman and Sophomore Correlation Conferences. Both groups called for faster check-outs, longer follow-ups and the substitution of rubber gloves for the omnipresent finger cots.

*General comments.*—This last area for unstructured student comment elicited praise from both samples. A few comments bore on the "impracticality of CMC," "its psychiatric orientation," and the paucity of "good organic patients." The bulk of the comments were positive such as "the most worthwhile experience in medical school, it benefits all, no matter of future specialty," "excellent but frustrating: guess it's my problem" "will make a good physician out of me," "the CMC is the most relaxed and pleasant service of the entire medical school curriculum."

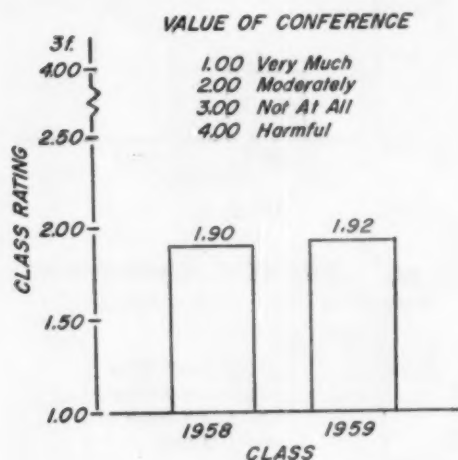


CHART 3f

of the clinic. Often the students wished for more "organic" patients, commenting on the frustration caused by the nonselected outpatient population. Students praised the clinic by stating: "enjoyed having my own office and the facilities of practice," "had the feeling of the staff as consultants," and "the most informative six weeks in medical school."

*Recommended changes in the operation of the CMC.*—Three broad classes of suggestions were made: didactic additions, operational changes, and "no changes recommended." The Class of 1958 asked for more additional teaching than did the Class of 1959; the Class of 1958 did not have benefit

#### DISCUSSION

*The idea and usefulness of comprehensive medicine.*—It is clear that the students feel they understand the idea of comprehensive medicine and find it more than moderately useful in their clinical work. How precise and differentiated a conception they have was not explored and thus not known. This particular question came into focus when the entire CM staff was attempting to make its own conception of CM more rigorous. The generally positive student ratings were accompanied by a degree of qualification and criticism. Many questioned the practicality of comprehensive medicine. A visitor pointed out that "traditional clinic" work-ups took as long. This suggests that the students' criticisms reflected their anxieties over inexperience and inefficiency. Comments such as "too much psychiatry," "not enough good organic patients" reflected, among other things, their disappointment in outpatient medicine where many patients realistically need psychological and sociological understanding.

*Adequacy of preparation for comprehensive medicine.*—In 1958 many students felt less than adequately prepared for comprehensive medicine. The Class of 1959 viewed the pre-



clinical preparation more positively. Several factors might be at work here. In 1958 the students filled out questionnaires *at the end of their stay* on the CMC; their ratings became more favorable as the end of the senior year approached. The 1959 sample answered the questionnaire *at the end of the senior year* and no such trend between early and late groups was noted. This suggests that the students' appraisal of their education becomes more positive as they approach its end, or feel more confident of their abilities, or both. At the same time the curriculum of the Class of 1959 included the CM Correlation Conferences in the first 2 years, which the Class of 1958 had not had. Similarly, the ever evolving psychiatric curriculum might have been better for the class of 1959. The substance of their comments reveals that students feel the need for more "bridging" material and experience is allowed for a smoother transition from the preclinical academic frame of reference to the clinical focus of the last 2 years.

*The Comprehensive Medicine Clinic Experience.*—In contrast to another study (1), students at Temple University Medical Center were overwhelmingly positive toward the experience. They approved of the non-selectivity of patients; they thought highly of the amount and quality of supervision and, not surprisingly, they felt that patients in the CMC are treated "more comprehensively" than elsewhere in the Medical Center. The ratings of the quality of supervision by the class of 1959, while still better than "good," were significantly lower than those in 1958. Two factors might have been at work: first, other hospital services became more comprehensive in the intervening year so that the difference between the CMC and the other services would have decreased; second, the co-directors of the Comprehensive Medicine Program were given additional responsibilities and were, therefore, less able to provide as much day-to-day supervision of the medical students on CMC. The students rated the afternoon case conference as "Moderately Helpful"; one of the more common objections to the

conference was that it was "student operated." The students selected the case and ran the conference on a rotating chairman basis. After 3 years of authoritarian teaching such student responsibility was apparently disquieting.

The "most striking recollections" reported by both classes pay tribute to the growth potential inherent in the CMC situation. Students reported cognitive growth in their understanding of patients. They also reported, both explicitly and implicitly, a considerable growth of their ability to play the physician role. While role learning is an extremely important part of any professional growth, it usually takes place without either student or teacher being actively aware of such learning. By understanding this process and by deliberately maximizing the opportunities for such learning, medicine has the opportunity to make conscious and methodical what has heretofore been largely unconscious and artistic. While others have referred to the need for "training in uncertainty" the results suggest a need for training the student in the *realities of medical practice*. The two are not unrelated; as long as medical education is at a medical center, which emphasizes the drama of in-patient medicine, the "realities" and "uncertainties" of outpatient medicine remain in the background. The life and death context of a hospital and the anxiety over the differential diagnosis give the unusual syndrome a high priority in the hierarchy of disease interest. It is not surprising that some students tend to ask for more "organic" teaching. It is also understandable that some students were disappointed with the realities of outpatient medicine as they faced them in the CMC and wished that medicine were different. Two needs are manifest: (a) other than anecdotal data on the scope and emphasis of medical practice are needed, and (b) the conditioning process before and during medical school should transmit a more accurate and balanced picture of what contemporary medical practice is "really like." The students are left with a positive view of

the comprehensive medicine idea and the CMC experience despite their coming to grips with some of the realities of medicine. For many it was an extremely meaningful growth experience; for others it was pleasant and thought-provoking. Very few seemed to have the kind of negative reaction alluded to in the other reports. Finally, the questionnaire had the added value of raising questions for the comprehensive medical faculty. Both operational and curriculum revisions have resulted.

#### SUMMARY

This report describes a study of student attitudes toward various aspects of the Comprehensive Medicine Program at Temple University School of Medicine. Anonymous replies to a questionnaire were obtained from the classes of 1958 and 1959. The results indicated that the senior students felt that they understood the idea of comprehensive medicine and valued its clinical usefulness. Many students spontaneously commented that it was the "best" kind of medicine, but were concerned with the amount of time required for the initial work-up. Students tended to be positive, but less so about the adequacy of the preclinical curriculum, including psychiatry, to prepare them for their later experiences in comprehensive medicine. These ratings became

more positive in 1959. Attitudes toward the CMC experience itself were almost all positive. This included a comparison between the CMC and other clinic experiences, the nonselectivity of patients, and the amount and quality of supervision. The students' comments indicated that they found the experience productive of personal growth and an increased understanding of the patient. Whereas the students criticized certain aspects of clinic operations, the failure of their preconceptions to match with the realities of outpatient medicine appeared to account for many of their comments. Some implications of these findings for a better understanding of the medical educational process are discussed.

#### REFERENCES

1. HAMMOND, K. R., and KERN, F., JR. Teaching Comprehensive Medicine. Cambridge, Mass.: Harvard University Press, 1959.
2. STEIGER, W. A., and HANSEN, A. V., JR. The Teaching of Comprehensive Medicine at Temple University School of Medicine and Hospital. *J. M. Educ.*, 32:580-84, 1957.
3. STEIGER, W. A.; HANSEN, A. V., JR.; and RHOADS, J. M. Experiences in the Teaching of Comprehensive Medicine. *J. M. Educ.*, 31:241-48, 1956.
4. STEIGER, W. A.; HOFFMAN, F. H.; HANSEN, A. V., JR.; and NIEBUHR, H., JR. A Definition of Comprehensive Medicine. *J. Health and Human Beh.*, 1:83-86, 1960.

# MEDICAL EDUCATION FORUM

## Editorial

### HOSPITAL COSTS AND RELATED TEACHING

Physicians and laymen have much to say about rising hospital costs which outstrip other common living costs—food, wages, and taxes. Few persons realize the extent and cost of the teaching done in the larger hospitals, especially the hospitals closely associated with medical schools and research institutions.

*Nurse* training costs these hospitals more than the service rendered, and this raises the cost of the bed day as usually estimated. But nurses are invaluable in the community, and they must be given training—the better the training the better for everyone.

*Interns* and the *resident staff* are paid more today than twenty years ago but are still underpaid. Their food, lodging, and care are expensive for the hospital, but this junior group is essential to the proper function of these large teaching hospitals. This group supplies many practicing physicians to the local area. This also adds appreciably to the bed day cost.

Many hospitals offer *refresher courses* to physicians in practice which enable them to become better acquainted with some of the very recent advances in diagnosis, surgical therapy, the care of the aged patient, public health work, and so on. These courses given at the hospital or school cost the hospital a good deal of time and money but are very valuable to the community as it means better and more modern medical care.

*Graduate students*, special students, foreign students, student fellows in many hospitals add up in numbers to more than the resident staff. They are more expensive for the hospital as larger laboratories, more supplies, and many technicians are required. Is this a legitimate hospital expense? We believe it is truly a part of the hospital budget if we admit that medical teachers and investigators in the clinical branches are desirable. These teachers are invaluable and are in very short supply. Economy in this spot would be destructive of future medical development.

Hospital costs have risen to a point where relatively few patients can afford the costs, and patients do not wish to be considered charity patients. *These training costs should not be included in the bed day cost.* It is a part of our broad educational program: the training of medical and research groups which later are of great value to the community, the state, and the nation.

Should these costs be allocated to the state and/or the federal government? This would be an ideal solution to cover the training of specialists in medicine or medical research and/or teachers in medical science and therapy. It cannot be worked out in a few weeks, but it is high time to discuss this problem from every angle and educate physicians and laymen as to all the details.

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*The University of Rochester*  
*School of Medicine and Dentistry*

## Datagrams\*

### MEDICAL-SCHOOL FULL-TIME FACULTY STAFFING PATTERNS IN 1951<sup>1</sup> AND 1960<sup>2</sup>

In 1951 one out of every four faculty members in all United States medical schools held a full-time appointment. By 1960, or nine years later, the proportion of full-time to total faculty increased so that one out of every three faculty positions was held by a full-time appointee (see Fig. 1). These relationships are based on total faculty engaged in teaching, research, and administrative services and includes physician members as well as doctorates in the basic sciences and other non-physician faculty members. "Full-time" refers to geographic as well as strict full-time.

The trend toward a larger proportion of full-time faculty in medical schools is an important indicator in the continuing effort to elevate standards in medical education. As early as 1912, in the Introduction to Abraham Flexner's book, *Medical Education in Europe*, Henry S. Pritchett commented on the general acceptance of the idea of full-time teachers in the basic sciences and medical sciences and continued as follows:

It has not been so generally granted that the clinical teacher must also be primarily a man who devotes his life to teaching and to research. This reform is the next great step to be taken in the improvement of medical education in the United States and Great Britain. . . . With more general acceptance of the view that medical education is *education*, not a professional incident, the conception of the clinical teacher must undergo the change here alluded to. The teaching of clinical medicine and surgery will then cease to be a side issue in the life of a busy practitioner; it will propose to itself the same objects and conform to the same standards and ideals as the teaching of any other subject of equal importance.

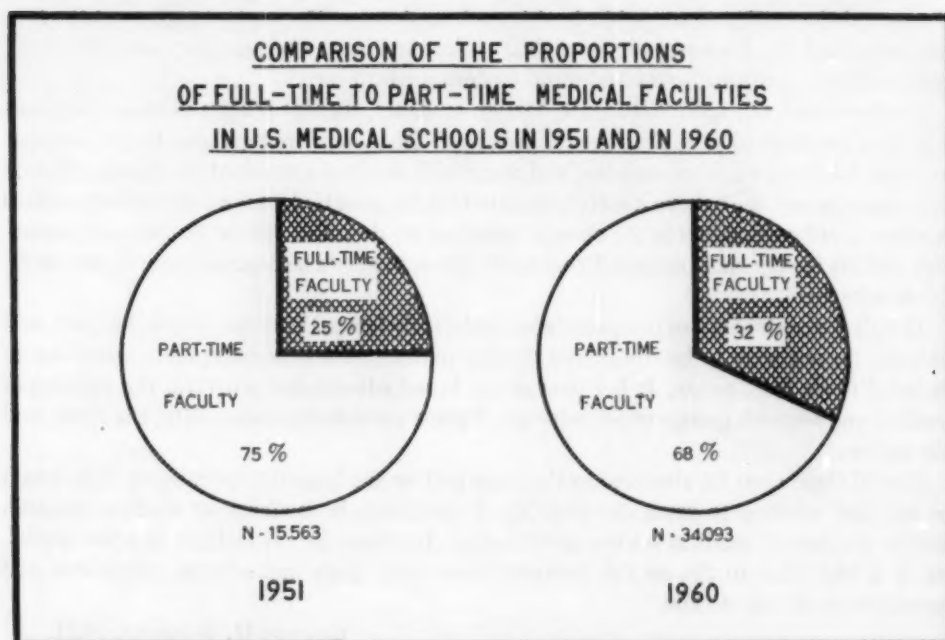


FIG. 1

\* Submitted by the Division of Operational Studies of the AAMC.



Between 1951 and 1960 the number of full-time faculty members increased from approximately 4,000 to 11,000. During the same period the number of medical schools increased from 79 to 85. The following estimated percentage increases over the nine-year period are, therefore, shown on an average-per-school basis.

Faculty Group (Full-Time)	Estimated Percentage Increase 1960/1951 (Average per School)
Total faculty.....	162
Physician faculty.....	139
Doctorates in basic sciences and other non-M.D.'s	214

In spite of the 162 per cent increase shown above in the total full-time faculty, it is interesting to note that 655 budgeted unfilled full-time faculty positions were reported by United States medical schools for the academic year 1958-59.

The percentage increase for doctorates in the basic sciences and for other non-physician faculties was considerably higher than that for physician faculty members. The question may well be asked: What part of this increase is a function of expanded research programs and how much is attributable to the expansion of educational activities?

The recent report of the Committee of Consultants on Medical Research suggests that some of the increase in faculty is directly attributable to the increase in research budgets available today to the medical schools.

A program cost study is currently being sponsored by the Association of American Medical Colleges in co-operation, on a voluntary basis, with the member schools. When this study is completed, it will provide up-to-date information on the average amount of time devoted by faculty members to research and teaching programs, respectively—information which is not currently available. In 1951 Diehl *et al.* reported that slightly more than one-half, 55 per cent, of the faculty time was spent in teaching; another 32 per cent was spent in research.

In interpreting this preliminary information for 1960, especially with respect to absolute numbers and percentages, consideration must be given to a primary limitation of the data—the fact that they are not complete. About 10 per cent of the faculty members listed in the medical-school catalogues have not responded to the Faculty Directory Questionnaire. Also the continuing turnover in medical-school faculties precludes a 100 per cent return at any given time. However, comparisons have been made with data for 1951 as reported by Diehl *et al.* It can be presumed that they are subject to the same limitation.

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<sup>1</sup> In 1951 the AAMC in co-operation with the Office of Defense Mobilization prepared a register of medical-school faculties in order to supply important statistics about the nation's teaching manpower and medical-school faculty staffing patterns. Data obtained in this survey included reports from 15,563 faculty members with the rank of instructor or higher who devoted 25 hours or more annually in teaching, research, or administration at a medical school. Analyses of these data were reported in two articles authored by Diehl *et al.* which appeared in the *Journal of Medical Education*. The first was "Medical School Faculties in the National Emergency," 27, Part I (July, 1952), 233-43. The second was "Staffing Patterns at Four-Year Medical Schools," 27, No. 5 (September, 1952), 309-15. Information in the present Datagram pertaining to 1951 was obtained from these reports. Seventy-two four-year schools and seven two-year schools were included in the 1951 survey.

<sup>2</sup> The Division of Operational Studies is currently compiling a register of medical-school faculties similar in many respects to the one compiled in 1951. Returns, as of July 1, 1960, were approximately 90 per cent complete and include 36,054 faculty members with the rank of instructor or higher. To establish similar criteria for the comparisons between 1951 and 1960, one thousand nine hundred and sixty-one part-time faculty members, who devoted less than 25 hours annually to teaching, have been excluded from the 1960 data. Eighty-one four-year schools and four two-year schools are included in the 1960 data.



## Address

### PROCRASTINATION AND PIONEERING\*

JOHN E. DEITRICK, M.D.

This lecture is sponsored by the Nu Sigma Nu fraternity founded in 1882 at the University of Michigan and dedicated to the proposition "that a lack of association and organization constitutes the greatest weakness among both students and graduates of medicine." I propose to ask the questions: "Are we procrastinating in attempting to maintain national fraternities in medical schools? Are they still necessary to promote associations?" A year or two ago my answer to such questions would have been that fraternities had outlived their usefulness. Today I am not so sure that all fraternities should be disbanded.

In the old days when I was in medical school, 25 years ago, the medical student was on his own and was forced to take the responsibility of finding or providing his own board and room. The fraternity was almost a necessity. Celibacy was the rule, and the individual student sought the companionship of congenial fellows. A fine stock of examination questions was to be found in most fraternity houses which covered the didactic teaching of most departments. Even the ordinary student with a little work could review these old questions and pass the routine examinations. The fraternity contributed to the educational program of the school by sponsoring occasional lectures and to the social life by promoting dances which did not always elevate the moral standards of the institution.

Today the situation has changed. Many schools have erected modern student dormitories and cafeterias where living is comfortable and economical and recreation rooms and facilities are available. Marriage has leveled a serious blow at fraternity life. More than 60 per cent of the members of our graduating classes are married. Why should a student pal around with a group of fraternity brothers when he has a young, attractive wife waiting for him at home who has been working all day as a secretary, technician, or nurse to support him? A large student residence was opened at Cornell several years ago with lounge rooms, a snack bar, gymnasium, club room, and pool room. The fraternities began to fade. We have since converted four adjoining buildings into 1½- and 2-room apartments for married students. Only one fraternity still exists, that is Nu Sigma Nu. I realize that I am describing conditions in New York City, but from what information I have obtained the same trend is to be found at other medical schools—dormitories and marriage mean a steadily diminishing interest in fraternities. It may be that within 10 or 15 years medical fraternities will no longer exist, but I would like to suggest a few areas in which those that still exist might try pioneering.

The medical school today is becoming the hub of a medical center about which a new type of community is developing. The medical student, single or married, is only a segment of this community. It is composed of nurses, technicians, secretaries, social workers, graduate students, research fellows, and a steadily increasing number of interns and residents and

\* Talk given to the Nu Sigma Nu at the University of Wisconsin.

their wives and children. The majority of these people may live relatively close to the center. Medical centers are attempting to provide better living accommodations for such individuals, and I believe these communities of health workers will expand around medical schools. The needs of such a community will be quite different from those of the medical students some years ago. The community will require new services such as common social functions and gatherings, religious activities, kindergartens, baby sitting clubs, a register of good jobs for students and wives, a student organization to promote closer social and personal relations between student and faculty members and to cooperate with the administration to further the welfare of the student and the medical school. Some organization outside the administration of the medical school could help to organize these services. The medical student may need more than ever before some organization to help keep him identified so that he will not become lost among the overwhelming number of interns, residents, fellows, and other health personnel who already far outnumber him in medical centers. At Cornell, with small classes of 84 students, dormitories, cafeterias, common lounge and social rooms, I felt that we had provided ideal facilities for close personal contacts among students and between students and faculty members. I was chagrined to find after talking to the students that they knew relatively few upper classmen and were not closely acquainted with some members of their own class. It was obvious that we had all the facilities but lacked the organization to help make them most useful to the students. Nu Sigma Nu was struggling to try to play this role by having small student parties, informal talks by young faculty members, and sponsoring excellent lectures with get-togethers for faculty and students before the lecture. The dean's office is trying to cooperate with the fraternity.

To summarize in broad terms, fraternities must take stock of their activities, provide some of the needs of the new communities in which they find themselves, or close up shop.

The next subject I would like to explore with you is the attraction or diminishing attraction of medicine as a profession and the decreasing number of applicants for admission to medical schools. Medical educators discuss endlessly the high cost and long duration of medical education, but it seems to me that we procrastinate and make little progress. Perhaps we are all confused. The former Provost at the University of Pennsylvania in describing some of the confusion that exists in medical education told the following story in Chicago. Perhaps some of your faculty members have already told you the story. A nephew who had not seen his elderly maiden aunt for several years dropped in to see her while on a business trip. She was delighted to see him and asked innumerable questions about his family and his work. When given the opportunity he asked what she had been doing. She was most voluble and said she was having such an interesting and exciting time in her Bible Club which met weekly. She had just returned from a meeting at which the ladies had discussed the Book of Revelations. Being moderately well acquainted with the Bible himself he was surprised and said, "But Aunt Grace, the Book of Revelations is one of the most difficult in the Holy Book; had all the ladies studied it and did they understand it?" Her reply was given without hesitation, "Oh, no, no one knew anything about it nor understood it but they had such a wonderful time discussing it." Some of our critics believe the deans and professors in our medical colleges are like Aunt Grace's club members.

Why are the applications for medical schools in this country dropping while the demand for doctors is increasing? This question has us guessing. In 1948 more than 24,000 students applied for admission to medical schools in this country. Last year the number fell to 15,000, although the number of places available in first-year classes had increased from 6,487 to

8,128. In 1934 there were 13,000 applicants before the population growth had begun to explode. Last year, students with A grades who gained admission to a medical school had fallen from 40 per cent of the total number to 16 per cent, and those with B averages increased from 43 per cent to 69 per cent. These figures may be an ill omen for the future of the medical profession. The experts have given the following reasons for this phenomenon. In 1948 there was still a considerable number of veterans from World War II seeking admission to medical colleges. This group has been cared for. The high tuition fees and the duration of medical education discourage students from considering medicine. Other fields of science and engineering are offering college students better opportunities and greater rewards with shorter periods of education. Another explanation is that the birth rate was relatively low preceding the last World War, and we are now dependent upon these babies to fill our medical school classes as well as all other openings in graduate education. If we just wait a few more years the large crop of war babies will be graduating from college and will swell the number of applicants for medical school. Barely mentioned is the fact that perhaps the medical profession and the doctor are not held in such high esteem as in former years. Certainly few believe that organized medicine has gained in prestige with the public in recent years.

These theories and facts may completely explain the diminishing interest of college students in medicine, but I occasionally ask myself if we in the medical schools have contributed in any way to discourage the interest of students in medicine. I now propose to join Aunt Grace's club and enter into a speculative discussion with you which will consist of more theory than fact and about which I certainly do not pretend to have complete understanding. You must use your imagination and some psychology if you are willing to follow the argument.

During and immediately following the last war the medical colleges were riding the crest of the wave of scientific prestige created by the research which gave rise to many valuable scientific contributions to man's welfare. The schools were in difficulty financially but not in terms of raw material—medical students. There were four applicants for every place in the freshman classes. We boasted that an applicant had to be at least a B+ student to be seriously considered for admission, and there was little doubt that we were receiving the cream of the crop of students seeking graduate and professional education. We looked with some amusement at our confreres in law, engineering, dentistry, and other graduate schools as they struggled to elevate their admissions standards. For a period of more than 10 years we told premedical college advisors to discourage students from considering medicine unless they were outstanding academically, especially in science. We gradually expanded our prerequisites, seeking students not only able in science but also broadly educated. They must understand modern society, appreciate art and music, know about history and philosophy. We sought men who had been leaders in athletics and in college affairs. The candidate should also have drive, integrity, and ability to take responsibility, stand hard work and emotional strain, and willing to make personal sacrifice—dedication was the word we used. We regretted that medical education was so expensive, but we were also a little proud of this fact. Figures derived by experts were quoted as showing the cost to a university ranged from \$3,000 to more than \$8,000 per year per medical student. Such figures were never adequately supported. The medical college was looked upon with suspicion by the university because of these costs. Tuition has been slowly but steadily increased to help meet rising

costs, and next year several private medical colleges will be charging \$1,500. The average cost to a medical student in these schools will probably be \$2,800-\$3,000 or more per year for tuition, room, and laundry, making the total cost for four years \$12,000-\$15,000, not counting travel, amusements, and, one may as well add, marriage. These costs are not at all out of line with the increased costs of autos, food, clothing, and other forms of education.

We have been extremely honest with both prospective students, premedical advisors, and parents, overemphasizing these so-called high costs and advising them that work in medical schools is very difficult and that to be properly trained the student after graduation should spend 3-5 years in hospital training where he would receive board and room and a very small stipend which would not allow him to meet his expenses. The work hours for the intern and resident have been reduced, and they are now usually required to work only every other night and alternate weekends. He is unique among hospital employees who work only 8 hours a day, 5 days a week. For good measure, the young physician will be required to spend 2 years in the armed forces. Have we not painted a most attractive picture for our prospective students?

Recently I was asked to speak about a career in medicine to a large group of high school students. In previous years another professor had performed the same task, and I was told that he had thoroughly covered the details which I have briefly reviewed for you. The number of students in this school interested in medicine has been steadily diminishing. Perhaps we are reaping the rewards of the propaganda we have been giving the public in the past 10 years—the reward being a decreasing interest in the study of medicine. Have we underplayed the interesting and exciting aspects of medicine, and what are we doing to try to improve its attraction and correct some of its defects?

Briefly, we are attempting to expand and improve our recruitment of student's interest at the high school level, using pamphlets, talks, and movies. One of the movies being shown nationally is moderately depressing, showing in color considerable cutting and oozing blood and was emotionally disturbing to me. I doubt whether it will attract many candidates. We are lowering our standards, as I have already documented, by the lower grades of students being admitted. We are making attempts to help the student with his financial problems. Those of us in private schools with high tuition fees are making serious efforts to increase our scholarship and loan funds, and the Association of American Medical Colleges has held discussions with the Federal Government concerning funds for scholarships. A few medical schools, in cooperation with their universities, are attempting to shorten the college course and medical school years by combining some college courses with those of the medical school. This approach may save the students a year. Usually vacation periods have been reduced to 1 month, especially in the third year of medical school.

Can we do some pioneering to improve this entire situation? Many deans, of whom I am one, do not believe that the 4 years of college nor the 4 years of medical school should be reduced. Certainly there is no less to learn today in college or in medical school than there was 25 years ago, and we have little evidence that students are more intelligent.

We are taking a positive approach when we try to provide economical housing and food, scholarship and loan funds, struggle to keep tuition down, and accept the fact that society looks with favor on marriage in medical school. Wives can be a financial asset to students.

The one area in the education and training of a physician which has undergone the most rapid development and greatest change in the last 15 years is that of internship and resi-



dency training. Pioneering might be done in this area to see if it can be improved. The medical colleges have little control over these years, except in those hospitals owned or affiliated with them. Organized medicine, meaning the A.M.A. and the specialty boards, set up the standards and duration of such training. Are all hospitals approved for internship and residency training adequately staffed and equipped to provide such education? I think not. I know of two hospitals admitting only adult male patients which were approved for rotating internships. There is absolutely no doubt that the staffs of many approved hospitals use interns and residents as cheap help in the care of both ward and private patients. The demand is so great for this type of assistance that we are importing foreign graduates who cannot speak English to carry out these chores. We urgently need better standards for hospitals which wish to offer internship and residency training. Why waste an intelligent young man's time in second-rate work? Even our so-called teaching hospitals could be improved. We have no clear-cut definition of a medical college teaching hospital—I think it should be one in which the school selects the interns, residents, and the entire attending staff.

A second question is how much time must a graduate spend in hospital training to gain competence for practice? Today the Boards are rather rigid in their time requirements, forcing young men to remain in hospitals. Certainly all men do not become proficient and technically competent in the same length of time. If hospital training were improved, the time requirements for the Boards made more flexible and the Boards spent more time on examining their candidates' knowledge and judgment, I believe a year or more could be cut off the long training periods.

A third question should be raised: Is it necessary today, with a diminishing or static cold war, to require all young doctors to spend 2 years in the armed forces? The A.M.A. and the A.A.M.C. might well discuss this question at the Washington level, since we are having so much difficulty maintaining an adequate ratio of doctors to population.

Finally, is there any reason why the intern and resident should not be more adequately paid for the professional service he renders to patients? What pay he now receives is provided by hospitals which are not supposed to collect professional fees, yet these young men are rendering very valuable professional services. The large majority of them are licensed physicians. With insurance plans rapidly expanding covering both hospital costs and professional fees it is possible to set up a fund derived from the insurance fees from patients admitted to teaching services which could be allocated to the interns and residents. When they assist a physician to care for his private patients I see no reason why he should not be asked to contribute some percentage of his fee to such a fund.

Medicine might be more attractive to young men if they could at least be self-sufficient during these long hospital training periods. The good intern should be worth \$200 per month plus his board and room, and a fifth-year resident should receive at least \$5,000 per year plus room and board. These figures could be easily achieved if professional fees could be collected and properly distributed—still we procrastinate.

I will finish by suggesting a positive approach to recruiting. I would not underestimate the need for intelligence, integrity, responsibility, and dedication in our candidates, but I would emphasize the opportunities in medical school to live and work with an intelligent group of young men and women, to explore and to learn about numerous interesting and exciting fields, to study and treat the most interesting of all animals—man, to come in contact with some great teachers and fine physicians, to participate in most of the mental and



emotional crises experienced by men and women. I would emphasize the pride that comes from being on a team of first-class interns and residents who work hard, play hard, and enjoy their profession, and finally the deep satisfaction that comes after adequate training when one is capable of diagnosing accurately, treating adequately, and discharging a patient happy and in good health. I believe medicine will remain a great profession, attracting able students and held in high respect by the public as long as we take pride in doing fine work for our patients. I tell our students, "Do not do as your professors do, but try to do better." Do not be afraid to pioneer, there is much to be done.

## Reports

### INTERNSHIP RESIDENCY AND RESEARCH PLACEMENT OF FOREIGN MEDICAL GRADUATES IN U.S. HOSPITALS—SURVEY AND RECOMMENDATIONS\*

J. J. GUILBERT, M.D.

"Medicine does not nor has ever recognized an international boundary"—OSLER

Recently, an unfortunate and tragic incident occurred at a New York City Hospital, which served to call public attention to the fact that something is wrong with the system that provides many hospitals in the United States of America with inadequate house-staffs made up almost exclusively of foreign medical graduates. The occasion prompted newspapers to uncover reports which show these interns to be underpaid, overworked, unhappy, and, most serious, sometimes underqualified for their jobs.

All of this confirms what a number of observers of the United States medical scene have been saying for several years.

As a graduate in medicine at the University of Paris, and having interned in an United States Hospital, Medical College of Virginia Hospitals, in Richmond, Virginia, this writer was concerned and disturbed by the unfortunate experiences which many of his fellow doctors from abroad underwent in the United States. I was convinced that they were getting less adequate professional training than they could get here; that they were far less useful to hospitals than they could be if they were properly selected, briefed, and placed; and that the system was producing a number of young doctors who returned to positions of importance in their own countries with less than friendly feelings toward the United States.

This report summarizes our observations and analyzes the foreign graduates program as it now operates; describes what is being done; and outlines the things that must yet be done. It attempts to keep in perspective the interests of the hospital, the desires of the foreign graduate, the necessity for protecting standards of medical care, and the goal of improving international understanding.

#### PROBLEM AND PROPOSAL

At the present time, there exists outside the United States a shortage of good teaching institutions for postgraduate medical training. Barring a total reorganization of medical postgraduate education abroad, many foreign medical graduates will find it necessary to complete part of their training in the United States.

Large numbers of foreign medical graduates come to the United States for internship and residency. Unfortunately, these visits are not carefully planned exercises in international cooperation between medical authorities in different countries. They tend to be exactly the opposite—poorly planned and poorly coordinated.

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Because of poor selection and orientation of candidates, the foreign doctors serve the hospitals' needs less adequately than they should. To date, hospitals have selected these doctors on the basis of a simple written application, with little verification of the applicant's proficiency in the English language, medical training, or personal adaptability to life in an American hospital. This situation has forced hospitals without medical school affiliation to take almost all applicants, and many large hospitals are staffed almost entirely by foreign-trained graduates; smaller hospitals try to compete for foreign graduates but sometimes are unable to get any at all.

The program also serves the foreign doctors far less adequately than it could. Some apply to hospitals which promise attractive stipends without realizing that the teaching programs are weak and the opportunities for treatment of patients and for good supervision are limited. Others find themselves overworked and isolated in a hospital environment with limited opportunity to profit professionally and personally from their United States sojourn. For all, placement in hospitals is a haphazard process, with little chance of getting the opportunity best suited to enhance their own professional training.

These experiences do not contribute to international understanding and amity, and not a few foreign doctors depart the United States unhappy and embittered by their experience. That many regard positively their professional training in the United States is a tribute to their willingness to endure these difficulties for the sake of the valuable professional training and experience they receive, and an equal tribute to the considerable personal assistance they receive from the permanent medical and nonmedical staffs of the hospital in which they serve.

The United States medical profession has recently established the Education Council for Foreign Medical Graduates (ECFMG), an organization whose program is aimed at the most serious problem—protecting the hospital patient from treatment by unqualified foreign-trained doctors. The ECFMG is now administering examinations in numerous centers abroad which test the applicant's medical knowledge and his understanding of English. Beginning in 1960, hospitals are no longer permitted to enroll foreign medical graduates as interns unless these doctors make a minimum score on this examination. Preliminary reports indicate this may reduce the number of foreign doctors eligible for United States internship by 30 per cent.

However, apart from two limited exceptions (the Ventnor Foundation in New Jersey and the Unitarian Service Committee Medical Program, with offices in New York and Paris), there is no organization concerned with providing foreign doctors in United States hospitals with more effective professional training and a more satisfying personal experience. Concerns of the hospitals are inadequately met by the ECFMG program, since it does not deal with the problem of placement and pre-orientation, nor does it help hospitals assess personality factors in the selection process. With the exceptions noted above, no group is currently working to insure that medical exchanges contribute to international understanding and good will rather than to hard feelings and embittered relations between medical communities.

It is, therefore, suggested that a program be established under the joint sponsorship of United States and foreign medical authorities (in Europe and in Italy) which would address its services to these tasks. Such a program could include the following services:

- a) Collection of information on the hospitals offering internships, residencies, and fellowships; lists of hospitals; reports on hospitals' personnel requirements and teaching programs,

- b) Making collected information available to foreign medical schools and their students.
- c) Improvement of contacts between foreign and American organizations interested in medical exchanges.
- d) Assisting hospitals in the selection of applicants by securing supplementary information about the applicants where other sources (ECFMG exams, etc.) do not give adequate guidance. This might involve securing evaluation by medical authorities abroad, supplemental tests, or even personal interviews.
- e) Preparation of participants for their experience in the United States by (1) pre-departure orientation or orientation during the voyage to the United States, and (2) orientation through personal contacts with American families prior to the beginning of their hospital experience.

If such a program can be established, the American hospitals will benefit from the improved performance of adequately selected and oriented foreign graduates. The graduates, in turn, will be better prepared to profit from their American experience both professionally and culturally. A by-product of such a program will certainly be better understanding between the countries involved.

At this point it would be well to emphasize that all activities should be designed to encourage the foreign doctor's prompt return to his home country following his training in the United States. The rest of the world has even greater need for doctors and medical research workers than the United States. Immigration to the United States by foreign doctors who receive training in this country defeats the goal of providing better training for the medical profession abroad and eliminates the usefulness of medical exchange as a method of building international understanding.

Now to a few observations concerning ECFMG examinations. These are composed of the same type of multiple choice questions given by the National Board, and are completely unfamiliar to European students, who are used to the essay-type question. (The multiple-choice type of examination is, of course, often used in American schools, and the medical student who studies in the United States is therefore well prepared for taking the test.) There is evidence that some foreign graduates have failed the test solely because of their unfamiliarity with this system.

The first qualification examination was given March 25, 1958, to 298 foreign medical graduates who were already in the United States. Of the 298 taking the examination, 152 (51 per cent) attained a score of 75 per cent or better and were granted standard ECFMG certificates.

The second examination, on September 23, 1958, was given to 844 candidates in about 30 United States medical schools and in about 30 examination centers set up in foreign countries with well-instructed American national proctors in charge. Of the 844 foreign medical graduates who took this examination, 418 (49.5 per cent) attained a score of 75 per cent or better and were granted standard ECFMG certificates.

Failure to understand English was apparently much more of a stumbling block for the overseas candidate than for the Stateside candidate. Of the 137 overseas candidates, seven failed the ECFMG English test, and three were listed as "questionable pass." In contrast, of the 707 Stateside candidates, none failed the English test, and only six were listed as "questionable pass."

The third examination was given February 17, 1959, to 1,772 foreign medical graduates in 33 examining centers in the United States and 44 centers overseas. Of the 494 candidates taking the examination in the 44 overseas centers, 153 (31 per cent) obtained scores of 75 per cent or better . . . and 110 (22.3 per cent) obtained scores of 70-74 and received ECFMG

temporary certificates. In the fourth examination (September 22, 1959) 717 candidates took the examination in 65 overseas centers; 282 (39.3 per cent) obtained scores of 75 per cent or better, and 141 (19.7 per cent) obtained scores of 70-74 and received ECFMG temporary certificates.

ECFMG's program description states that "it will distribute to foreign medical graduates around the world authentic information regarding the opportunities, difficulties, and pitfalls involved in coming to the United States . . . in order to take training as an intern or resident in a United States hospital." At present, the ECFMG's information program is limited to distribution of a list of hospitals which accept interns and residents—a list which is also published each year in an edition of the *Journal of the American Medical Association*. This list, while very useful to someone who is familiar with the American hospital system, is of little help to the foreign graduate. The ECFMG, moreover, gives no information about the working conditions in hospitals and no information about their teaching program. It also indicates that it cannot advise students about variations in the quality of hospitals on the American Medical Association list.

Thus, whereas ECFMG remains indispensable because of its assistance in the screening of foreign doctors, it is not able to supply information which foreign doctors need in order to select a hospital in the United States. Finally, the testing method employed by the ECFMG does not evaluate the candidate's personality, nor his ability to adjust to life and work in the United States.

#### CONCLUSIONS

The writer believes that foreign medical graduates should come to the United States for internships, residencies, and research because their coming serves to enhance their professional training and personal growth and, at the same time, greatly aids the United States hospital system. There are many difficulties in the program, and it is urgent that a service be set up which incorporates (1) information to prospective candidates for United States study, (2) improved selection of those who come, and (3) orientation of those selected.

1. *Information to prospective candidates for United States study.*—No mechanism now exists abroad, from which foreign doctors or medical students can obtain information about what travel scholarships are available; which hospitals offer what type services; procedures for applying; examinations; counsel and indoctrination regarding American customs and living costs.

An information program must *not* be designed to recruit foreign doctors simply to fill vacancies in American hospitals. The basic aim of a good program must be to assist these foreign doctors in extending their medical education and their growth as human beings. It also must be within easy reach of these doctors.

2. *Improved selection of those who come.*—It is essential that candidates be carefully chosen, so that mediocre doctors will not be allowed to endanger the effectiveness of the program. Candidates should be selected not alone by medical and linguistic standards, but with consideration of their character and personality, as well. Bases for selections are as follows:

a) Adequate knowledge of English, not only written, but spoken, as well. The foreign doctor will have contact with patients from his first day in a hospital, and poor knowledge of a language creates limitations in social relationships and narrows generally the doctor's experience in a foreign country.



b) Adequate medical knowledge so that the candidate will be on a par with his American colleagues.

c) A desire to learn.

d) A desire to come to the United States to work hard, and not for a year or 2 of vacation. Too frequently the candidate's concept of American life is based largely, or solely, on the Hollywood picture, and this is not duplicated in the life of the intern in the United States hospital.

3. *Orientation.*—While it is elementary, it is imperative to understand that the United States is different from Europe, and though these differences provide much of the value of the exchanges, they also furnish ample opportunity for misunderstandings and difficulties. Adaptation is often extremely difficult, and orientation must begin before departure from the home country. It should include discussions and lectures on social, political, and economic aspects of American life, and a thorough consideration of these specific items:

- a) Medical education in the United States
- b) The "scarcity" of interns in the United States
- c) Definitions of a "teaching institution," "an affiliated hospital," "a non-affiliated hospital," "a community hospital"
- d) Internship and residency programs
- e) Teaching program in a hospital
- f) Medical records—how to write up a medical observation
- g) Life in an American hospital; the hierarchical structure; lodging; meals; social relationships
- h) Relationships with nonmedical personnel in a hospital—especially nurses.

The goals of such a program are fourfold:

1. Increasing the value of the United States experience for the foreign doctor—both as professional training and as exploration in a foreign culture.
2. Increasing the usefulness of the foreign doctor to the United States hospital.
3. Protecting standards of medical care to patients.
4. Contributing to increased understanding between Americans and citizens of foreign countries.

Such a service might be set up either by a national or international medical organization; by an organization in the field of cultural exchange; or as an independently incorporated organization.

The task of establishing and financing such a service is formidable but not an impossible one. The writer believes it can be done. Interest in the problem is widespread, and the goals are of overriding importance. It is a task in keeping with the highest traditions of the medical profession and a responsibility that medical institutions must assume. Lastly, it is a service to the strife-torn world in which we live.

As Dr. Gunnar Gundersen, former President, American Medical Association, succinctly stated, "... Medicine, with its resources and influence fully mobilized, can perhaps do more for world peace than the billions of dollars being poured into armaments."

A concise appraisal of the need for continued study in this area was offered by Dr. Detlev W. Bronk, President, Rockefeller Institute for Medical Research, when he stated that "international medical cooperation will not quickly lead to an Utopia in which conflicts no longer exist. But these common scientific efforts are nevertheless dramatic proof that people can gain by peaceful means that which they have vainly sought to acquire through wars."

## FOR ALL THOSE WHO DESIRE TO STUDY

PROFESSOR V. V. KOVANOV\*

First Moscow Medical Institute, Moscow, U.S.S.R.

What are the conditions which our Institute offers foreign students?

Our Institute is the finest medical school in the country, one with very old traditions. It celebrated its 200th anniversary 5 years ago. Its laboratories are equipped with the latest techniques. They also have modern diagnostic apparatus, including an artificial heart and lungs. We have our own clinic, and our students receive their practical training at the best Moscow hospitals. We keep in touch with the latest achievements in medicine. We constantly exchange undergraduates and postgraduates with other countries. There are students from the Sorbonne with us this year. Fifteen of our own students have left for Paris, where they will study the achievements of Sorbonne University.

Our curriculum is a very broad one. About 6,500 students are specializing in the therapeutic, sanitary-hygienic, and pharmaceutical departments. The course of study is from 5 to 6 years. Our staff of instructors includes world-famous scientists.

More than 80 foreign students from the Sudan, the United Arab Republic, India, Albania, the Lebanon, Bulgaria, Greece, Iran, Ghana, Morocco, and other lands attend our Institute. A new group of young people from abroad will study at our medical school this year. They include 37 students from former colonial and dependent countries. All foreign students receive a stipend of 900 rubles a month, and are provided with rooms in the students' dormitory. Some of them live in the dormitory of Moscow State University, which is known for the conveniences it affords.

We have organized a special department for the study of the Russian language in order to help the foreign youth. All students have the opportunity to indulge in numerous sports during their leisure, for which purpose we have volley-ball and basket-ball grounds, tennis courts, gymnasiums, and swimming pools. During the summer almost all students go to our sanatoriums and rest homes or set off on tourist hikes. Foreign students are given free accommodation at the best resorts of the country, and once in 2 years they are given free passage to their native lands.

Are there any who are not serious about their studies? Unfortunately, yes. For instance, take the case of Stanley Omor Okullo, from Uganda. He left bad memories of himself. This year 500 foreign students finished the second year and were advanced to the third year. Okullo and six other students did not finish the work called for by the plan for the year and were unable to take their examinations. Okullo was absolutely unprepared for them, and we had to ask him to leave. He packed his grips and flew off to London. I heard he wrote in Western papers and accused us of not providing proper conditions which would enable the foreign students to study. He also complained that we, as he put it, attempted to propagandize him and to draw him into politics. In other words, he tried to lay the blame for his own faults on someone else. He himself, at every lesson, tried to start discussions on political questions, and even managed to switch the talk over to politics when his class was studying such an obviously neutral theme as the structure of the human body.

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Okullo was very arrogant in his manner, missed classes, and ignored such an important second-year subject as physiology. He did not do the practical work assigned, nor did he attend seminars.

His behavior in every-day life was also not what it should have been. I frequently received telephone calls from the Moscow State University dormitory and was told that this student of ours came home long after midnight in a drunken state and that he organized drunken orgies in his room.

Needless to say, such behavior failed to impress us. Yet we tried to make him see reason. Besides, we assigned one of the assistants of the eminent Academician Anokhin to work with him, got all the necessary text-books for him in English, free of charge. I can confidently say that Okullo was provided with much better conditions than the other foreign students at the Institute. As far as I know, all foreign students in Moscow, including the Africans, have their unions. Unfortunately, I cannot give you any detailed information in reply to this question. Neither I nor my colleagues ever interfere in the personal life of the foreign students. The organization of unions is their own personal affair, and no one ever interferes with that.

As for Okullo, you may be certain that the place he left will not remain empty. It will be occupied by students who sincerely wish their countries' economic, scientific, and cultural progress.

There is one more thing I should like to say. We Soviet people are a hospitable people, and we will continue to help the countries that have liberated themselves from the fetters of colonial dependence, in the training of national personnel. We are ready to help all those who wish to study.

# ABSTRACTS FROM THE WORLD OF MEDICAL EDUCATION

ANGELA SANCHEZ-BARBUDO, Ph.D.  
Abstract Editor

**Medical Care in China Today.** T. F. Fox, M.D. American Journal of Public Health, Supplement to Vol. 50, No. 6, pp. 28-35 (June), 1960.

Dr. Fox (editor of *The Lancet*, London) discusses in this paper the information and personal impressions gained during his 1-month visit in China in 1958. China has still some 370,000 practitioners of traditional medicine (the equivalent, roughly, of medieval apothecaries, herbists, and barber surgeons) who use a vast number of ancient drugs and remedies and have developed special methods of treatment (e.g., *acupuncture*). At the same time there exist at present about 75,000 doctors, graduates from qualified medical schools, representing Western medical science and practice. The latter, however, are again divided into two conflicting groups: those educated before 1949 are nearly all trained abroad, identifying themselves with the Western medical world, whereas the younger ones, "mass-produced" on the Russian plan, are exposed to unceasing political instruction and pressure which prevent scientific detachment. Medical science, on the other hand, still derives much of its inspiration from Europe and America, whereas the organization of medical education and research, of public health, and, especially, of medical care, is largely on the Russian model. The author was surprised, however, to find that Chinese patients, unlike Russian, still have to pay fees, though very small, for seeing a doctor, and, sometimes, quite substantial sums for drugs, x-rays, and operations. The reason for such a deviation from communist principles is, according to Dr. Fox, the inadequate number

of doctors who would be utterly overwhelmed if all ill people in China were entitled to unlimited free medical care. However, the trend is toward abolishing fees gradually, and there are already certain groups who enjoy free medical service, such as government employees, industrial workers or students. Another surprise was the survival, to a certain extent, of private practice, although mostly group practice and under municipal regulation (the latter sometimes very slight, as in the case of group practice in Shanghai, cited by the author, where only the rates of fees require approval). Yet a further significant stage in the evolution of medical care was seen in a Manchurian city where private group practice has already been abolished entirely and all patients go to municipal health centers. Although general practitioners of the old school still survive, the modern trained doctor in China works mostly as one of a group in which he plays a specialized part. Thus, all Chinese doctors are specialists of a sort, and even the smallest medical center (for instance a 15-bed village hospital) will have a "team" including a surgeon, internist, pediatrician, and gynecologist. What the Chinese call *primary care*—and the West general practice—is the responsibility of the municipal authorities, no matter where it is given. For health administrative purposes the big cities are divided into districts, each of which has a "people's council" with a health office directed by doctors. These are responsible also for *secondary* medical care, that is, for district hospitals. The latter are in China (like many municipal hospitals elsewhere) mostly old, overcrowded, and



understaffed (the nurse shortage is especially great). In the Shanghai suburbs, however, Dr. Fox saw a new expensive hospital with 110 beds which provided excellent conditions of work, tackling almost everything and referring only neurosurgery to a higher, or *third*, level, which consists of the hospitals run directly by a city, province, medical college, or the government. It is mostly in these top-level hospitals that the specialized work is done (those in Peking include a fine new children's hospital with 600 beds). What is especially remarkable in Red China, Dr. Fox points out, is their success in preventing disease and the way in which medicine can be brought into every home. As a result of the intensive Government health campaign against the "Four Pests" (rats, sparrows, flies, mosquitoes) smallpox, plague, and kala-azar have been wiped out, and there has been no cholera since 1949. Yet, in spite of so much unprecedented progress in preventive medicine and public health, the future of medicine, in the new China, is far from being assured. The recent officially sponsored revival of traditional medicine is seen as an especially disturbing factor, a symptom of retrogression which is already reflected in medical education (at Shansi, for instance, medical students must devote no fewer than 740 hours out of the inadequate total of 5,000—a 5-year course—to traditional medicine).

**Just What the Doctor Ordered. An Analysis of Treatment in a General Practice.** RICHARD SCOTT, M.D., J. A. D. ANDERSON, M.D., and ANN CARTWRIGHT, B.Sc. *British Medical Journal*, No. 5194, pp. 293-299 (July 23), 1960.

In this paper, three staff members of Edinburgh University discuss the present-day role of the general practitioner. Similar discussions, it is pointed out, have been hampered in the past by a lack of information about the range of therapeutic techniques commonly employed by doctors. Previous studies tended to concentrate on certain, most easily definable aspects of the

general practitioner's work, such as prescribing, certification, referrals, diagnostic skills, etc. (cf., the bibliographical references included at the end of this paper), whereas relatively few facts have been brought to light about the nature and extent of the *social therapy* dispensed by the general practitioner. The present paper derives its information from a combined job analysis and morbidity study carried out, over a 1-year period (Oct. 1, 1956-Sept. 30, 1957), in Edinburgh University's General Practice Teaching Unit. There an attempt was made to define and analyze the several components of the doctor's therapy in order to show in perspective the importance of certain specific functions (the prescribing of drugs, for instance, so important in today's general practice, or the extent to which he becomes involved in the social factors of his patients' environment). The relevance of these findings to the concept of the family doctor's function was then analyzed. Following the investigation step by step (including a brief indication of the ways in which the material was collected) the paper offers a description of the Edinburgh U. General Practice Teaching Unit itself, where some 5,000 patients receive family doctor care under National Health Service conditions. Special emphasis is given to the factors likely to influence the extent and nature of the doctor's work. Some comparisons with other studies of general practice follow, as well as a brief description of the pattern of morbidity encountered in this practice. Summing up the results of the investigation, it can be stated that the *prescribing of drugs* and the *issuing of statutory certificates of work incapacity* were two of the major forms of therapy provided. However, much of the family doctor's therapeutic efforts were concerned with the patient's social and personal circumstances and his psychological reactions to disease. Therapy, in these circumstances, took the form of advice and explanation to the patient, and a discussion with the latter of his problems of adjustment to his disease, the social and medical services available, and the economic, social and per-



sonal relationship factors of his environment. Results from the study also revealed a relatively high consultation rate in the practice and a low prescribing rate, and possible reasons are discussed. What are the implications of the investigation's findings on medical education? At present, the authors point out, clinical instruction being based nearly exclusively on the hospital, emphasis in teaching is almost inevitably placed on those aspects of therapy which are concerned with specific treatment of the definable major, specific clinical entities. Comparatively little attention can be given to the complex social and psychological problems which play such an important role in the daily work of the general practitioner. As a consequence, the newly qualified doctor, equipped with techniques and attitudes acquired in the laboratory atmosphere of the teaching hospital, may sometimes find himself bewildered by the idea that his patient "may require pennies rather than penicillin, sympathy rather than surgery, or insight rather than an injection."

**Medical Education and Practice in Israel.** ALEX M. BURGESS, M.D. *The New England Journal of Medicine*, Vol. 263, No. 6, pp. 283-86 (Aug. 11), 1980.

This report is based on a recent 2-week visit to Israel by the author (Director of medical education, Miriam Hospital, Providence, R.I.), during which occasion he visited five of the largest hospitals (as well as Poriah Hospital, one of the smaller Government institutions) the country's medical school in Jerusalem, a settlement for aged immigrants, etc. The principal problem for Israel, he explains, during the first years of its existence as an independent state, was not how to educate new doctors but what to do with all the physicians who came to the country as immigrants. Added to those already there, and to the relatively small group of graduates of the Jerusalem Medical School, they have made the physician-population ratio in Israel the highest in the world (approximately 5,000 per 2,000,000). As to

medical education at present, it is, the author points out, very similar to medical education in the U.S.A. The total period of study leading to a degree is the same, except that premedical studies (including the basic sciences as well as psychology, sociology, and English) are given in the Medical School; besides, 1 year of compulsory internship (the 7th year of studies) is required before the degree is granted (after submission of an acceptable thesis prepared under the supervision of a tutor). Although many distinguished members of the medical faculty come from famous European centers, clinical instruction is given after the American rather than the European model (in small groups, with emphasis on bedside teaching and discussion more than on didactic lectures). A very valuable addition to the training program promises to be the rotation of senior students through a family health center which will be put into operation next year in various community centers. The present medical school work is done in the Hebrew University-Hadassah Medical School, located in a number of buildings in the central part of Jerusalem, which, the author points out, are not very well suited to the purpose (a result of the loss to the Arabs of Mount Scopus, where the original University buildings were situated). However, the thesis that it is people and not buildings and equipment that is of major importance is confirmed in the excellent results of the school in spite of its being so inadequately housed (furthermore, about 3 miles from the center of Jerusalem a new medical school and hospital are now under construction which according to the author will be some of the finest in the world). The Hebrew University Medical School, which conferred its first M.D.'s in 1952, has now over 450 physicians in its list of graduates, and nearly all have remained in Israel. The total student body in medicine is about 500 (200 more in dentistry, pharmacy, and medical sciences). The University is a private and autonomous institution which was in existence before the creation of Israel and thus has been able to develop its educational policies in an at-

mosphere of maximal academic freedom. Graduate training is also similar to that in the U.S., with the difference that all newly qualified doctors (women included) have to do 2½ years of compulsory military service and 1 year of rural service. In spite of this long period of preliminary work, about 70 per cent of the graduates apply for residency training in the various specialties. Residents are competitively chosen, and competition is especially keen for the position of chief resident (a situation which, it is feared, may become very discouraging to a number of excellent young residents). Summarizing his general impressions on medical education and practice in Israel today, Dr. Burgess states that "an excellent medical school is turning out well trained young physicians each year." Home and clinic care are being given by a large group of doctors (not all as well trained as would be desirable, since all immigrant physicians with diploma have been as a rule admitted to medical practice without further examination) whose work is well organized. *Good medicine* is being practiced in the hospitals, the physicians on the hospital staff being a highly select and able group. Public health control of various diseases (especially malaria and T.B.) has been an outstanding success.

**Medical and Related Education [in the Soviet Union].** The Report of the United States Public Health Mission to the Union of Soviet Socialist Republics (Aug. 13 to Sept. 14, 1957), III, pp. 44-52.

Medical education in the Soviet Union has deviated considerably from the former levels of traditional university training. Although for a decade after the revolution the university system was continued under the careful scrutiny of a Faculty of Medicine, since 1929 there has been an almost total withdrawal of medical education from the university environment. Today Soviet medical training is conducted largely through the medium of *Medical Teaching Institutes*, whose staff was originally selected from medical graduates of both the pre- and post-

revolutionary classes. In these institutes pre-medical and medical subjects are taught in didactic fashion through lectures and laboratory demonstrations. After 6 years' training the Soviet student graduates with a physician's certificate, not with a M.D. Early during World War II, many medical teaching institutes were destroyed or put out of function which for a while reduced greatly the output of graduates. A great effort was then made to graduate as many young physicians as possible through the remaining ones, which effort yielded approximately 60,000 newly qualified physicians for the 4 war years. By 1947, however, the number of medical teaching institutes in the Soviet Union had risen to a new high of 74, and the first post-war 5-year plan produced 97,000 physicians (an additional 84,000 attended postgraduate courses). In 1948, the Soviet Ministry of Health instituted a new program for physicians who wanted to specialize, under the immediate auspices of the Institutes for the Advanced Training of Physicians. In 1957, a total of 87 medical training institutes existed in the Soviet Union, 68 of which were Medical Teaching Institutes (corresponding, roughly, to the U.S. medical colleges), and nineteen for advanced or specialized training. During the past decade the period of medical training has been extended from 5 to 6 years (with the first 2 years devoted mostly to preclinical subjects). Marxist philosophy and political economy continue to be compulsory parts (including examinations) of the medical curriculum. Other aspects of the basic medical education pattern in the U.S.S.R. are discussed in detail in this report.

The U.S.A. Public Health Mission's conclusions can be summed-up as follows: (1) In the Soviet Union emphasis is given to *quantity* in the production of medical personnel. (2) Medical training varies greatly in quality; in general it is suffering from overloading of training facilities and from inadequate practical training in the basic sciences. (3) Physicians work at many tasks elsewhere performed by auxiliaries. (4) A formal hierarchy exists which, through rewards in sta-

tus and salary, provides incentive to advance the physician's career by means of graduate studies. (6) Physicians and other health workers were found, in general, to be dedicated persons interested in the patient as a human being (this, as the report points out, "in spite of the utilitarian motives of the Government in rendering health and medical service"). (7) Professional training is intimately identified with political training. (8) Little evidence was found to suggest that significant research is being carried out in teaching institutes (part IV of the same Report deals in detail with medical research in the U.S.S.R.). Several charts containing all available statistical figures on medical training in Russia are added to substantiate these views.

#### **Medical School for Monash University.**

The Medical Journal of Australia, Vol. II, No. 4, p. 147 (July 23), 1960.

According to information supplied by the Vice-Chancellor of Monash University (Melbourne), this institution expects to establish soon a medical school at Clayton (suburb of the city of Melbourne). Construction of buildings for the preclinical work will start at the earliest possible date while clinical instruction will be carried out at two already existing hospitals. In view of the scope and complexity of the problems involved, it has been decided that the Dean of Medicine shall occupy a full-time permanent position of professional status. He will advise the Interim Council on the appointment of preclinical and clinical staff, and on the curriculum; he also will give guidance to the architects on the functional design of the school buildings.

#### **Teaching of Psychiatry at National Taiwan University.** TSUNG-YI LIN, M.D. British Medical Journal, No. 5195, pp. 345-48 (July 30), 1960.

This report, by a Professor of Psychiatry at National Taiwan University, stresses the point that the introduction of modern psychiatry to Taiwan—a society still tradition-

ally Chinese in culture and social institutions and at the same time in the transitorial stage of rapid industrialization—called for special consideration and careful planning. The first real teaching program in psychiatry (which in the previous 50 years had held almost no position in medicine and public health), following the drastic revision of the medical curriculum in 1953, was devised to meet local needs and conditions. Census surveys of a sample population in three communities (rural, small town, and urban) were carried out previously, which yielded a clear picture of the prevalence of mental disorders which, in most cases, were cared for at home. In view of the shortage of trained personnel, it was felt expedient not to concentrate on the training of a necessarily inadequate number of specialists, but rather to focus all efforts on guiding the future physicians in understanding and furthering mental health programs, and on enabling them to deal competently with minor psychiatric problems. The teaching of psychiatry, according to the new program, comprises, for all medical students, a total of 330 hours (300 hours are taken up in clinical clerkship training both in out- and in-patient departments, with case-conferences, seminars, etc.) with, moreover, half the students spending 6-7 weeks as psychiatric interns in the final year. This intensification of psychiatric teaching presented a formidable task to the understaffed Department of Neurology and Psychiatry (the timely publication of the Report of the Ithaca Conference of the American Psychiatric Association, 1952, was an important help in organizing it). Psychiatry in Taiwan is now taught (a) as a specialty of medicine in treating the mentally ill; (b) as an introduction to psychosomatic medicine and the psychology of the physically ill; (c) as a part of the basic philosophy of medical education in presenting the concepts of the "whole man" and of sound doctor-patient relationships; and (d) from the point of view of its part in community health programs. A broad outline of the whole teaching program is given in the present report, and some specific aspects of

the program for clerkship students are discussed in detail. In evaluating the results of this study plan, the author (who is convinced it should continue) emphasizes the fact that the morale of the teaching staff in the Department of Neurology and Psychiatry has risen considerably since its inception. The response of the students appears also to have been most encouraging. Another important result is seen in the increase of more intelligent consultations on psychiatric problems from other departments. However, the author does not consider the program as perfect and discusses some of its plans suggesting areas of improvement.

**Tests of Anatomical Knowledge.** C. H. BARNETT. *The Lancet*, London, Vol. II, No. 7144, pp. 254-56 (July 30), 1960.

The value of the conventional essay-type question in the final examination in medicine has often been questioned. At Queen's University, Belfast, it was found so inefficient in distinguishing between students that, it was said, "a random allocation of

marks would have been nearly as useful" (cf. G. M. Bull, *The Lancet*, 2:368, 1956). However, these findings, it is argued, would not apply to all parts of the medical course, and, in particular, not to anatomy. It may be assumed that a candidate imperfectly acquainted with the topography of the human body would not be passed by any examiner, whatever the method of testing. To check the validity of this assumption, an experiment has been carried out at London University on which Dr. Barnett (Reader in Anatomy at London University, St. Thomas Hospital Medical School) reports in detail: In a class of 50 medical students a comparison was made between the results of an essay-type paper in anatomy and the evidence provided by other examination methods; the efficiency of the examiners (three took part in this experiment) was also tested. The results, it is stated, were highly "reassuring" to the defenders of conventional methods: it was felt that the latter did fully succeed in sorting out those who knew their anatomy well from those who had an inadequate knowledge.



## NEW BOOKS

KENNETH E. PENROD  
Book Review Editor

### Abstracts

**Demonstrations of Physical Signs in Clinical Surgery.** By HAMILTON BAILEY. 13th ed. Baltimore: The Williams & Wilkins Company, 1960. 868 pp., 1142 illustrations. \$14.50.

Written originally for the student beginning clinical work in the surgical wards and the outpatient department, it is to him or her that this book is still principally addressed. Couched in language that should be understood easily by everyone who has been trained in anatomy and physiology, when a term with which the beginner is unlikely to be familiar is introduced, its meaning and derivation are explained. By progression the demonstrations tend to become less elementary. This, the 13th Edition, has been made more comprehensive than its forerunners. This is by design, since progressively the book has been used for more advanced instruction. Great care has been exercised in placing the many illustrations in or near the text they concern. This book was founded on the premise that the history, and physical methods of examination, must always remain the main channels by which a diagnosis is made.

**Rose and Carless Manual of Surgery.** SIR CECIL WAKELEY (Consulting Editor); MICHAEL HARMER and SELWYN TAYLOR (Eds.), assisted by fifteen contributors. 19th ed. Baltimore: The Williams & Wilkins Company, 1960. 1356 pp. \$15.00.

This classic among surgical textbooks was first written in 1898. In this, the 19th Edition, the editors have included brief biographies of the two original authors. They have retained the original dedication to Lord Lister. Since 7 years have elapsed since the last edition of this book, with few exceptions the whole book has been rewritten. This has necessitated the introduction of some 370 new illustrations. Much new knowledge of electrolytic disturbances and chemotherapy has been included. There are

new chapters devoted to malignant disease, the endocrine glands, and pediatric surgery. In particular the sections on orthopedic surgery, the surgery of the nervous system, and the surgery of the alimentary tract have been redesigned in a more logical form. Much has had to be deleted in order to keep the book to a reasonable size, and the chapter on anesthesia is the chief casualty.

**Fundamentals of Nerve Blocking.** By VINCENT J. COLLINS, with the assistance of EMERY ANDREW ROVENSTINE. Philadelphia: Lea & Febiger, 1960. 344 pp., 144 illustrations. \$9.50.

This book has been written to record in part the material and techniques presented in the regional course at New York University Medical Center and, more importantly, to record in brief the far-reaching contributions and accomplishments of Dr. E. A. Rovenstine. In this popular course the three ingredients to successful education are to be found: First, explanation of pain states and of the physio-pathology of the pain mechanism is accomplished in the classroom. Next, demonstrations of anatomy and landmarks by prosection and student dissection are carried out in the laboratory. Finally, imitation by the student of the nerve block technique is carried out under supervision on the cadaver. This is then followed by actual procedures on patients. The highlight of the course occurs on the last day, when a host of patients parade through the Nerve Block Clinic for observation. This book is divided into two parts: Part A, Principles and Problems; Part B, Regional Technics.

**Synopsis of Pathology.** By W. A. D. ANDERSON. 5th ed. St. Louis: C. V. Mosby Company, 1960. 838 pp., 414 illustrations. \$9.25.

The initial objective of this volume remains. This is to fill a gap which has existed between the very elementary manuals of pathology and the abundant excellent larger textbooks and reference works. In the present edition all chapters



received attention and required some change. Several parts have been rewritten and some subjects enlarged as seemed advisable because of the relative importance, current interest, or recent new information. For instance, pulmonary cancer, manifesting a rapidly increasing incidence, appears to be of greater relative importance and interest than when this book first appeared. Since the first edition of this book in 1942 a number of diseases or syndromes have appeared or have been newly recognized. These have necessitated frequent revisions, but the choice of inclusion and relative emphasis among such subjects must be a personal one. The reduction in extent of bibliographic references in this edition has been for the purpose of maintaining the volume in its present size.

**Cold Injury.** Transactions of the Sixth Josiah Macy Foundation Conference, July 6-10, 1958, U.S. Army Medical Research Laboratory, Fort Knox, Kentucky. Edited by STEVEN M. HORVATH. New York: Josiah Macy, Jr., Foundation, 1960. 360 pp. \$6.50.

This conference was attended by ten members and sixteen guests. The papers presented were as follows: Reducing a Large Efficient Homotherm to a Poikilothermic Status; Physiological Aspects of Hibernation in Mammals; Living on the South Polar Ice Cap; Medical Experiences at McMurdo Sound; Physiological Studies in the Antarctic; An Evaluation of Wind Chill; Shivering and Nonshivering Heat Production in Animals; The Problems of Equivalence of Specific Dynamic Action; Exercise Thermogenesis and Cold Thermogenesis; Energy Balance in Cold Environments; The Metabolic and Energy Balance of Men in a Cold Environment; and Field Studies on Cold Adaptation.

**Group Processes.** Transactions of the Fifth Josiah Macy Foundation Conference, October 12-15, 1958, Princeton, New Jersey. Edited by BERTRAM SCHAFFNER. New York: Josiah Macy, Jr., Foundation, 1960. 187 pp. \$4.50.

This conference was attended by fourteen members and six guests. The papers presented were: Experimental Aspects of Pediatrics; The Analysis of Behavior in Terms of Control Systems; and The Cult as a Condensed Social Process.

**The Management of the Doctor-Patient Relationship.** By RICHARD H. BLUM. New York: McGraw-Hill Book Company, Inc., 1960. 298 pp. \$8.50.

The purpose of this book is to guide physicians in their management of the doctor-patient relationship. The book is meant to fill the need for information which will help the doctor understand why patients behave the way they do, and it contains practical suggestions which should enable the physician to prevent needless patient dissatisfaction from arising. There are many references to common problems and situations that have arisen to plague both the doctor and the patient. The origins of the recurring difficulties are shown, and concrete advice offered, so that the doctor may augment his armamentarium of human relations skills. The book does not deal with psychiatric cases, terminology, or psychiatric treatment. The discussion of the nonpsychiatric medical and surgical patient is focused on the major sources of trouble which can arise to threaten or destroy the relationship between the doctor and the patient. The book is meant to be an exposition of principles of human relations with suggestions for the application of these principles to medical care. It is a book which contains facts, theories, opinions, and some guess work. It is a management guide in the art of human relations. It is not a technical treatise in medicine, psychotherapy, or social science.

**The Multilingual Manual for Medical Interpreting.** By LOUIS R. M. DEL GUERCIO. New York: Pacific Printing Company, Inc., 1960. 160 pp.

This handbook has been designed as an expedient tool for use by doctors in questioning and examining non-English-speaking patients. Six languages were chosen, after some research and consideration. French, Spanish, German, Italian, Polish, and Russian were thought to be the languages which would help doctors reach the greatest number of patients with language difficulties in this country. Each language has its own section, with the English questions repeated in each to avoid excessive turning of pages. The questions chosen are a composite of the various standard medical history forms used at several eastern medical centers. They have been paraphrased so that they can be answered by a "yes" or "no" or by gestures. In addition to these questions there are sections with

phrases and statements useful during the patient's stay in the hospital. Each English question is followed by the other language in its proper spelling. If the patient can read his native language, things are simplified, and the doctor can merely point to the questions he wishes answered. Also included is a phonetic transliteration of the question. Each language is separated by a marked tab, and an index is included to make it easier to find individual questions and statements concerning specific subjects and symptoms.

**A Polychrome Atlas of the Brain Stem.** By WENDELL J. S. KRIEG. Available through the author at Department of Anatomy, Northwestern University Medical School, Chicago, Illinois. \$3.00.

Herein is contained a set of analytical fiber drawings, one for each functional system, so matched that when all are printed on one sheet a simulacrum of the original Weigert section results, but with each fiber rendered in a coded color. These fiber drawings are on the right-hand page of each opening. A key to the colors used on each page is given, and the leaders and legends are printed in the same colors as the fibers they indicate. On the left-hand page is a drawing of the immediately adjacent section of the series, stained to demonstrate the neural

cell bodies, printed in blue to simulate the appearance of the thionin-stained sections. The drawings on the two facing pages are counterparts, since the clear spaces in the fiber stains are occupied by the cells, and vice versa. The folded sheets adjoining each pair of sections, when opened out, form a flanking pair of sheets which describe and explain the structures depicted. The opening out is to obviate frequent flipping of pages to correlate description with illustration. This atlas is intended primarily for use while studying brain stem sections in the laboratory work of medical school neuroanatomy courses. It may likewise be used in the absence of laboratory work for medical ancillary courses and for examination reviews to refresh the memory of previous studies.

## Books Received

**Adventure to Motherhood.** By J. ALLEN OF FEN. Miami: Audio Visual Education Company of America, Inc., 1960. \$2.95.

**The Christian as a Doctor.** By JAMES T. STEPHENS and EDWARD LEROY LONG, JR. New York: Association Press, 1960. 121 pp. \$2.50.

**Taken at the Flood.** The Story of Albert D. Lasker. By JOHN GUNTHER. New York: Harper & Brothers, 1960. 356 pp. \$5.00.



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The first part of the report deals with the general situation of the country and the progress of the work during the year. It is followed by a detailed account of the various projects and the results achieved. The report concludes with a summary of the work done and a list of the names of the persons who have been engaged in the work.

The second part of the report deals with the financial statement of the year. It gives a detailed account of the income and expenditure of the organization and shows how the funds have been used. The report concludes with a statement of the balance of the fund and a list of the names of the persons who have been engaged in the work.



## REPORT OF THE 71ST ANNUAL MEETING

"Medical schools in this country can't expand fast enough to teach the doctors needed



Thomas H. Hunter

in the next 10 or 15 years," predicted Dr. Thomas H. Hunter, dean of the University of Virginia School of Medicine, in his presidential address to the 71st Annual Meeting of the Association of American Medical Colleges.

He said that medical schools will have to plan towards developing group efforts if the physician needs of an expanding population are to be met. More and better use must be made, too, of supporting service from related personnel. "To that end," he added, "the AAMC Teaching Institutes will, in the next three years, study the impact of changing patterns of medical care on the programs of medical schools."

Simply expanding present medical schools won't meet the need for more doctors, he insisted, warning that the disproportionate increase in administrative load as a school grows may limit creativity.

Dr. Hunter forecast a time when lack of money will not be a medical school's major concern but rather a lack of established views on what it wants to accomplish with its funds.

Dubbing modern medicine as one of the major assets of the free world, the retiring AAMC President urged medical school faculties to develop more thoughtful means of meeting their responsibilities.

"How we help at all levels of medical education, probably in conjunction with government efforts, may make the difference in

the way the tide goes in the next decade," he concluded.

The 71st Annual Meeting, held October 30–November 1, at the Diplomat Hotel in Hollywood Beach, Fla., attracted approximately 750 medical educators and guests from the United States, Canada, and several foreign countries. Thirty-one Latin American deans and administrators attended, responding to special invitations issued by the Executive Committee of the Association.

The Continuing Group on Student Affairs, and the Medical School-Teaching Hospital Section of the AAMC convened at the Diplomat Hotel, October 29–30 for their meetings. The Eighth AAMC Teaching Institute, departing from usual custom of holding meetings immediately prior to the Association's annual meeting, held their sessions November 1–3, at the Diplomat Hotel.

### Aid Urged for Medical Students

Medical educators attending the opening session of the meeting heard Dr. J. Frank Whiting call for an \$86 million, five-year program of aid for needy medical students.

"Medical education in the United States will need new grants, subsidies, scholarships, and loan funds if this country is to maintain its present ratio of 132 doctors per 100,000 population," he said.

Dr. Whiting, who is assistant director of the AAMC's Division of Operational Studies, based his forecast on a large scale survey of 1959 medical school graduates by the Association.

The survey found:

Four-fifths of the financial support of the student's cost of education come from himself or from his family.

In four years, the average medical student pays for various expenses totaling between \$9,800 and \$16,000.

Only eight per cent of his support comes from scholarships and loans.

It costs twice as much to get an M.D. degree as it does to get a Ph.D. degree. There are four times as many scholarships and loans available for Ph.D. candidates as for medical students.

In urging a "total national effort" to alleviate the problem, Whiting said the money should come from private foundations, industries and state governments, not ruling out some federal aid. He contends, however, that the more the private foundations and industries can deal with this problem, the better it will be.

#### Medical Education in Great Britain

In his speech, "Professional Practice and Medical Education," Dr. John Ellis, Secretary of the Association for the Study of Medical Education, London, England, drew a comparison of medical teaching in Great Britain to that of the United States.

He recalled the tenets advocated by Englishman Richard Davies, who, in 1759, said, "Neither a previous education alone, nor practice alone can complete the physician." "Richard Davies," Dr. Ellis said, "was primarily engaged in attempting to reform medical education in his country, because at that time, the schools were concerned only with the treatment of patients and not with the education of students."

While Dr. Ellis revealed that even today the apprenticeship method of training in British teaching hospitals has been weakened by the effects of specialization, he believes the basic clinical technique obtained

by the student is possibly still not surpassed elsewhere. "But," he added, "the sound education in science is still obtainable only by those who go to Oxford and Cambridge and by a limited number of others." "For the majority of our (British) students, education (in the sense of learning how to learn) is still sadly lacking, their scientific curiosity is little aroused and their critical faculty remains poorly developed," he said.

Dr. Ellis maintains this is a situation that would sadden Dr. Davies could he see it, and added "it must alarm us."

Ellis thinks that the best American schools offer a better scientific education than can be obtained in Britain by their average medical students, but feels that their best schools offer a better clinical training than can be obtained in the United States. This was explained by the fact that U.S. universities have more control over the medical school than do those in Britain. And further, we in the U.S. employ a large number of full-time clinical staff, while in Britain, though the number is increasing, it is still very small. He said that in a few schools there is not even a professor of medicine.

Observing that the help of universities in both countries in planning medical care is urgently needed, Dr. Ellis contends the direction in which medicine moves at any one time is the resultant of but few forces. He said, "One is its power, a second is the challenge made to it, and the last is composed of the socio-economic conditions of the country at the time."

With all of this, Dr. Ellis wonders to what extent we in the United States, will swing back to Britain's pattern of a family doctor, practicing outside hospital, coordinating both medical and sociomedical care.

"How much will we both have come to realize that our professional happiness depends upon what we offer to the public rather than what we may receive from it?" Dr. Ellis asked.

#### Financing Medical Education

Dr. Ward Darley, in his report to the assembly on "Trends in Financing Medical Education," spelled out the findings of the



John Ellis

latest AAMC-AMA joint questionnaire on the trends in medical school expenditures by sources of income.

In categorizing expenditures by sources of income (tuition and fees; endowment; non-federal grants and gifts for teaching or unrestricted purposes; federal grants for teaching and training; state appropriations; support from general university funds; overhead on grants; teaching expenses paid by hospitals and clinics; and teaching expenses paid from medical service funds), Dr. Darley pointed out striking increases in the dollar volumes for each income category for public and private schools and noted that dollar increases for private schools were of much greater magnitude than those for the public. In drawing a comparison, Dr. Darley observed that in 1941, the average total expenditure for the private schools exceeded that for the public. "By 1948," he added, "the average totals for the two types of schools had reached equality and, by 1958, the public schools had moved ahead of the private."

"The change in the proportionate share which each of the categories contributes to a school's total income is of more significance than the change in dollar value," Dr. Darley said, as a proportion of the total income for tuition and endowment has fallen off for all schools. Incomes from non-federal gifts and grants for teaching or unrestricted purposes has increased for the private schools, but decreased for the public. The survey further shows that federal grants for teaching and training have increased for all schools. State appropriations have gone up for the public schools; support for general university funds for the private schools has decreased. Income for overhead and teaching expenses paid by hospitals and by medical service funds have increased for all schools.

Thus, he said, "patterns of medical school financing have been changing, and as expenditures continue to increase—which they must if medical education is to meet its responsibilities—further changes will be inevitable."

He believes therefore that, if our economy permits, income from non-federal gifts and grants for teaching and unrestricted pur-

poses could and should increase for both the private and public schools. "Any medical school that copes successfully with the changes and demands that lie ahead must have the flexibility that can only come from income that is designated for unrestricted use." Darley stated that it is imperative that such funds continue to flow to all schools.

### International Opportunities

"Medical science is the finest instrument yet devised for breaking down international barriers," observed the Director for Biological and Medical Research of the Rockefeller Foundation.



Robert S. Morison

Dr. Robert S. Morison said that once it is agreed that the nation and the West in general have an obligation, a duty, or a self-fulfilling urge to take part in the

progress of the rest of the world, certain special opportunities present themselves automatically to the nation's medical schools.

Dr. Morison pointed out that if American medical schools are going to participate in the nation's overseas peacetime effort, they will have to gain a much greater understanding of the conditions and the problems confronting those in the underdeveloped countries.

He said, "Since all of us are pretty well convinced that American medical education is the best in the world, what could be more natural than to assume that the best way of improving overseas medicine is to absorb as many (foreign) graduate students and interns as possible into our system. Unfortunately our problem isn't as simple as that."

Dr. Morison believes the medical educator still knows far too little about how to

select for training here those individuals who will profit most from the experience and, more important, who will put what they learn to the best use when they get back.

He warned that adaptation of Western methods to underdeveloped areas cannot be done overnight, no matter what "crash" programs are undertaken. The speaker believes that any medical school that commits itself to a serious role in this effort should prepare itself for a long-range program. He contends that a small nucleus of well-qualified staff which gives its highest priority to problems of overseas medicine is a prime requisite. Morison added, "It must be made clear at once that the health problems of underdeveloped countries cannot be solved by merely transferring American methods." He warned against focusing major attention on tropical medicine, as "two things that make the practice of medicine in these areas different from that in the United States are poverty and ignorance."

#### **Teaching with Paying Patients**

Dr. Robert G. Page, associate dean at the University of Chicago Medical School, predicted that private paying patients will play an increasingly important role in the education of medical students, interns, and residents.

Speaking before the Monday afternoon session, Dr. Page declared that many medical educators are concerned with the decreasing number of indigent patients available for teaching purposes in hospital graduate training programs. "The trend toward more universal health insurance has decreased the number of charity patients who have served as the major source of clinical teaching material in this country," said Dr. Page.

While the majority of doctors view clinical investigation and teaching as possible only with charity patients, Dr. Page reported that the University of Chicago has disproved this conception by successfully carrying on an active program for the past 20 years in teaching and research, using patients who pay for their medical care. He held that two decades of experience follow-

ing adoption of this plan have proved beyond doubt that scientific research and medical instruction not only do not suffer but actually improve under these conditions.

"The patients, fully aware of this program, are not only willing but eager to participate in this exciting and inquisitive atmosphere," he asserted.

Dr. Page maintains that the medical student benefits from this type of program as he not only sees patients from practically all socio-economic levels, representing the broad spectrum of American society, but is exposed to a doctor-patient relationship which he will carry throughout his entire career.

In another address to the assembly Dr. Robert A. Macbeth, professor of surgery at the University of Alberta, Edmonton, Canada, added strength to this belief by revealing that the University of Alberta has successfully carried on this plan for the past 36 years.

#### **Doctor's Responsibility in a Changing World**

The audience heard Dr. Howard A. Rusk warn that Federal aid to medical education is the only answer to the grave financial problems facing United States medical schools.

Dr. Rusk, associate editor of the *New York Times*, and chairman, department of physical medicine and rehabilitation at New York University School of Medicine, reminded those educators who object to Federal aid for teaching that they are the very ones who are accepting more than \$600 million this year from the government for sponsored research in medical schools.

"Teaching and research go hand in hand," Dr. Rusk said.

"Although as recently as two months ago, to have advocated Federal aid to education would have been a 'bold statement,'" he said, "today there are strong signs leading to its acceptance on a high level. Both Vice President Nixon and Senator Kennedy have advocated Federal aid for medical education,



and Johns Hopkins University Medical School has announced in favor of this type of support."

"If our standards of high quality (in medical education) are to be maintained and our load increased to meet the ever-increasing needs, Federal aid is imperative," he added. He discounted the fear that Federal aid would endanger academic freedom by citing the success of Federal aid to land grant colleges for more than a century.

Dr. Rusk acknowledged the gap between "declaring for" federal aid and "doing", and advised medical educators to enlist the aid of the people of this country to help persuade the Congress to make this more available. "Federal aid can be gotten," he said, "only when the people understand the need. But they will help just as they have in the area of governmental medical research support, when they know the true situation."

"Today's situation in medical education, without Federal aid for medical teaching is not only serious," he said, "but borders on the catastrophic."

"They have spoken for increased support in the research field, and the Congress has given most substantial increases every year for the past seven over the recommendations of the administration and the Bureau of the Budget," Dr. Rusk added, "The people will speak even more emphatically on the basic needs of medical education, once they know the problem and recognize the need."

Commenting on the possibility that today the science of medicine may be getting more attention in medical schools than the art of medicine, he holds that in our eagerness for scientific perfection the medical schools have forgotten what is believed to be their basic mission—to teach doctors to treat patients—not just diseases. With this thought in mind, and in view of the decreasing number of applicants to medical schools, Dr. Rusk suggested that in medical school recruitment programs, the "scientific" not be so heavily stressed—placing more emphasis on the human and spiritual dividends.

## Awards and a Lecture

Two national awards and a sharp warning to medical educators featured the Association's annual banquet Monday evening, Oct. 31.



Joseph T. Wearn

Dr. Joseph T. Wearn, professor emeritus of medicine at Western Reserve University, cautioned medical educators must face their responsibilities now or "others will be only too ready to seize the initiative."

Delivering the Alan Gregg Memorial Lecture, he said, "We must consider whether medical faculties, intent upon their own research, teaching and care of patients in university hospital centers, have become less familiar than they should with all the other aspects of health service for which their students after graduation must eventually assume responsibilities."

Dr. Wearn feels that medical educators have an obligation to solve the problems connected with educating the physician adequately for his role in health services to his community. "Lay groups are becoming increasingly interested in these problems of health service, and are already active with plans of their own."

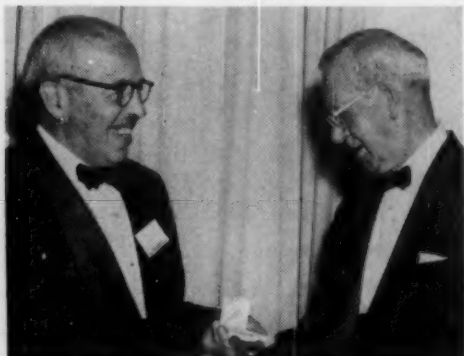
"Our greatest challenge," Dr. Wearn concluded, "is to develop educational programs and health service mechanisms which will assure that the products of our expanding scientific research will be applied promptly and effectively, in comprehensive care of patients in every community, not just in our elaborate university medical centers."

Dr. Wearn was a classmate of Dr. Alan Gregg at Harvard Medical School. He served on the medical faculties at Harvard and the University of Pennsylvania before joining Western Reserve University in 1929.



He was dean of Western Reserve's School of Medicine from 1945 to 1959, and vice president for medical affairs during the 1959-60 academic year.

The AAMC presented its Abraham Flexner award to Dr. Herman Gates Weiskotten, consultant to the Howard Hughes Medical Institute, for "distinguished service to medical education."



Robert A. Moore & Herman G. Weiskotten

Dr. Weiskotten's service to medical education began with his graduation from Syracuse University Medical School in 1910, the year the Flexner report was made. Some 25 years later, Dr. Weiskotten's survey of medical schools in this country provided a baseline by which progress of medical education and individual schools was measured for 15 years. He was then a representative of the Council on Medical Education and Hospitals of the AAMC and the American Medical Association, which he later chaired.

The award recipient had been named professor of pathology at Syracuse within seven years of his graduation. He became acting dean in 1922. Three years later he was named dean, a post he held for 26 years.

During his years at Syracuse, Dr. Weiskotten made unstinting contributions in the interests of health and medical education. He was director of the University Hospital of the Good Shepard in Syracuse; Commissioner of Health for the City; and among other activities, served on the Public Health Council of the State of New York. From 1954 to 1957 he was vice-president of the National Board of Medical Examiners.

In his presentation of the Flexner Award to Dr. Weiskotten, Dr. Robert A. Moore, president and dean of the State University of New York Downstate Medical Center, said, "Herman Gates Weiskotten is the type of man who well exemplifies the driving spirit which marked Abraham Flexner in his efforts to dignify medical education in the United States."

The Borden Award for "outstanding research in medicine conducted by a faculty member of an affiliated college" went to Dr. Robert F. Pitts, professor and chairman of the department of physiology at Cornell University Medical College. The award carried with it a \$1,000 cash award and a gold medal.



Robert F. Pitts

Presenting the award was Dr. Homer W. Smith,

professor of physiology at the New York University School of Medicine.

Writer of more than 100 scientific research papers since 1932 on the nature and function of the kidney, Dr. Pitts has contributed much knowledge toward a better understanding on the part of scientists of what makes the kidney work the way it does. His work has also contributed much toward the successful development of the artificial kidney function.

A graduate of Butler University, Dr. Pitts received his Ph.D. degree from Johns Hopkins University in 1932, and the M.D. degree from New York University in 1938. During his teaching and research career to date, he has served on the faculties of Johns Hopkins, NYU, Northwestern, the University of Pennsylvania, Syracuse, and Cornell.

#### **Business Meeting**

The AAMC wound up its formalized meetings on Tuesday, November 1, with a

business session that covered installation of officers, passage of resolutions, and reports of committees.

Dr. George N. Aagaard, Dean of the University of Washington School of Medicine in Seattle, was installed as President of the Association for the coming year; Dr. Donald G. Anderson, Dean of the University of Rochester School of Medicine and Dentistry, Rochester, N.Y., was named President-elect; and Dr. Stanley W. Olson, Dean of Baylor University College of Medicine, was named vice-president. Dr. J. Murray Kinsman continues as Treasurer, and Dr. Richard H. Young continues as Secretary.

The Association honored six medical educators by naming them emeritus members of the AAMC. They are: Dr. George W. Bakeman, Dr. Dayton J. Edwards, Dr. Joseph T. Wearn, Dr. Russell Henry Oppenheimer, Dr. Harley E. French, and Father Alphonse M. Schwitalla, S.J.

New to the Executive Council of the AAMC is Dr. George T. Harrell, Dean of the University of Florida College of Medicine. Dr. Harrell replaces Dr. Stanley W. Olson, whose term expires this year. Dr. George A. Wolf, Jr., was re-elected for a second term.

Two new committees have been established within the AAMC—the Committee on Animal Care and the Committee on Medical School Architecture.

In a report by the Chairman of the Committee on International Relations, it was noted that the Latin American deans acknowledged their appreciation to the Executive Committee and the membership of the AAMC for their kindness, warm interest, and cordiality at the 71st Annual Meeting.

The Latin American deans presented certain proposals at the business meeting. Of particular interest is the proposal that the AAMC consider the formation of a permanent committee to aid in furthering the objectives of the Latin American group, i.e., improving the caliber of medical education in Latin America; establishment of closer relations between schools in that hemisphere, providing aid where needed. The group also

proposed that immediately prior to the 72nd Annual Meeting, the AAMC sponsor a specific program to discuss Pan American medical education with participation of interested persons from all of the Americas. It is their hope that delegates from the AAMC will be able to attend the "Conferencia de Enseñanza Medica Latino-Americana" to be held in Montevideo, Uruguay, in November 1960.

Subsequent to this Drs. John A. D. Cooper of Northwestern, Maxwell E. Lapham of Tulane, Victor Johnson of the Mayo Foundation Graduate School and Dr. Jose Vivas, Dean of Puerto Rico University School of Medicine, represented the Association at this meeting which was held Nov. 28-Dec. 2.

### 1960 Teaching Institute

Revision of the present "objectives of medical education" is likely to be only one outcome of the 1960 AAMC Teaching Institute, "Medical Services and Medical Education: Today and Tomorrow," which was held at Hollywood Beach, Florida, immediately following the Association's Annual Meeting. The comment was made by Dr. Ward Darley, Executive Director, in closing the three-day sessions on November 3.

This Institute grew out of the deliberations of a Planning Committee, under the chairmanship of Dr. Carlyle Jacobsen, and two subcommittees chaired by Dr. Cecil G. Sheps and Dr. George A. Wolfe, Jr.

In attendance were 100 participants from the medical schools of the United States, Canada, Beirut (Lebanon), and the Philippines, as well as 49 invited guests from both medical education and a wide variety of other fields.

All papers presented at this Institute will appear in full in the official report of the Institute, scheduled for publication in October 1961. The Institutes, which are made possible by grants from the Commonwealth Fund and Public Health Service, are administered through the Division of Basic Research of the AAMC under the direction of Dr. Helen Hofer Gee.

## NEWS FROM THE MEDICAL SCHOOLS

### Alabama

The Medical College celebrated its 100th birthday December 9. The new \$3 million Medical Center research building formally opened that day, and a scientific symposium preceded a centennial dinner for state leaders, doctors, and university officials.

The Medical Center has set July 1, 1961, as a target date for setting into operation a new clinical research program for which a \$887,197 NIH grant was allocated recently.

Dr. ROBERT C. BERSON, Dean and Vice-President of the Medical Center, said the first-year grant of \$352,037 would be distributed to provide for renovation and construction, for operating expenses, and for the basic hospital expenses of the patients treated under the program. A portion of the University Hospital will be renovated to make room for the 12-bed clinic, which will provide free care to patients whose ailments fit in with research projects.

### Bowman Gray

Dr. CHAUNCEY G. BLY has been appointed research professor of pathology. Dr. Bly comes to Bowman Gray from Duke University Medical Center where he was associate professor of pathology.

The school is beginning a training program in radiation biology and cancer related, research. One, two, and three year traineeships at pre-doctoral and post-doctoral levels are being offered to research oriented people in the basic and clinical sciences. Stipends will range from \$1800 per annum to as high as \$8000 per annum. Applications for the training program are being accepted now for beginning in January, 1961, and will be accepted until April 15, 1961, to begin July 1, 1961. For further information, write

to Dr. DONALD J. PIZZARELLO, Radiation Biology and Cancer Related Research Training Program, Bowman Gray School of Medicine, Winston-Salem, N.C.

### U. of Chicago

The first research grant of the National Parkinson Foundation was awarded recently to the University of Chicago. The organization, seeking ways to combat Parkinson's disease, which afflicts one million Americans, will give the university \$150,000 for basic studies of the mysterious ailment. The grant will establish a senior research fellowship program in the division of biological sciences for the study of the disease. According to Alexander Halpern, president of the Foundation, "this grant marks the beginning of the Foundation's support of basic research, which it believes holds the key to the solution of the problem of parkinsonism."

### Cincinnati

Dr. IRVING L. SCHWARTZ has been named head of the department of physiology. Dr. Schwartz, senior scientist and attending physician at Brookhaven National Laboratory in Upton, N.Y., succeeds Dr. WILLIAM D. LOTSPEICH, who left Cincinnati last year. Schwartz will begin his teaching duties in February and occupy the Joseph Eichberg chair of physiology.

### Colorado

Two new appointments to the faculty were announced recently. Dr. PHILIP P. ELLIS has joined the school of medicine as head of the division of ophthalmology, and Dr. CONRAD M. RILEY has been named professor and head of the department of preventive medicine.

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Dr. Ellis came to C.U. from the University of Arkansas, and was formerly on the Iowa faculty of medicine. Dr. Riley, whose appointment becomes effective next July 1, has been chief of pediatric service at Denver General Hospital since July 1959. He formerly was a member of the faculty of the Columbia University College of Physicians and Surgeons.

#### **Dartmouth**

A recent cornerstone ceremony marked the beginning of an expanded medical education program at Dartmouth. The new facilities will provide for a doubling of enrollment from 48 to 96. With construction of a seven-story building, all activities of the medical school will be located in one place. The building, close to the Mary Hitchcock Hospital, will be completed next summer. Sixty per cent of the space is allotted for research.

#### **Duke**

The university has announced plans for a new clinical research program which will cost more than \$3 million in the next five years in combined construction and operating costs. The project is described as a major new development in the university's medical center.

Funds for the construction of a six-story addition to the Medical Center already are in hand, and a recent grant of \$288,100 by the Division of General Medical Sciences of the National Institutes of Health will defray the cost of operational expenses during the first year. Funds from the Public Health Service are expected to total \$1,581,000 for support of the program during the next five years.

RICHARD A. BINDEWALD will fill a newly created position as assistant to the dean of the medical school this year.

Bindewald, who was formerly personnel officer for the Medical Center, will assist Dean BARNES WOODHALL in business administrative matters pertaining to the School of Medicine.

Dr. R. TAYLOR COLE, a veteran Duke

University faculty member, has been appointed provost of the university.

Dr. THOMAS D. KINNEY has been appointed professor and chairman of the pathology department. Formerly on the faculty of Western Reserve's medical school, Kinney succeeds Dr. WILEY D. FORBUS. Dr. Forbus headed the department since the Duke Medical School was opened in 1930. He will continue to serve on the faculty until his retirement in 1963 at the age of 69.

#### **Albert Einstein**

A human heredity clinic that will draw on New York's "melting pot" population for research in human genetics is being established at the College of Medicine. Among the research goals listed, according to university officials, are analysis of the frequency of certain hereditary traits in such a population; the possible discovery of genetic factors in diseases not now known to have major hereditary aspects, and methods to improve the diagnosis of known hereditary diseases.

The New York City Health Research Council has approved \$556,491 in enabling funds for the center for its first five years. Chairman of the center will be Dr. SALOME GLUECKSOHN-WAELSCH, professor of anatomy.

#### **George Washington**

Construction of the new \$3 million addition to The George Washington University Hospital will begin next year because of action taken recently by the university's board of trustees.

In May the board approved plans to develop a five-block area about the present hospital into a major medical center with a target completion date of 1970. At that time the most immediate needs were listed as an addition to the University Hospital, a new School of Medicine, and a university clinics building.

With a recent gift of \$1 million from Agnes E. Meyer, widow of the late Chairman of the Board of the Washington Post,





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Eugene Meyer, together with an earlier grant of \$226,500 from the Ford Foundation and other gifts, the university will be near its goal of \$1.5 million with which to seek matching funds from the federal government.

#### **Georgetown**

Ground was broken in October for a \$4.2 million science building that the university said would be one of the most complete and advanced university buildings of its type in the United States. The new building will house both graduate and under-graduate research facilities and will be used to support study at the Medical Center.

The Rev. WILLIAM F. MALONEY, S.J., was named as Georgetown University's Vice-President for Medical Center Affairs. The extensive and qualitative growth and expansion of the Medical Center called for the new office, the Very Rev. EDMUND B. BUNN, S.J., President of the university said in making the appointment. Father Maloney has been university regent of the hospital and the schools of nursing and dentistry since 1952.

Dr. RICHARD A. STEINBACH has been named chairman of the department of psychiatry. Dr. Steinbach came to Georgetown in 1954, after having been staff psychiatrist at Haven Sanitarium, Rochester, Michigan.

#### **Harvard**

A Harvard Medical Clinical Research Center to speed the translation of new, basic medical knowledge to the care of patients, will be opened at the Peter Bent Brigham Hospital shortly after January 1, 1961. The Center is being made possible through a three-year grant of approximately \$2 million from the Division of General Medical Sciences of the NIH.

A 26-bed ward will be established adjacent to the Tackaberry Laboratory building at the Hospital. Dr. GEORGE W. THORN, Hersey professor of the theory and practice of physic at Harvard and physician-in-chief at the hospital, will serve as director of the Center.

#### **Jefferson**

The new \$550,000 Cardeza Foundation Laboratories Building of the Jefferson Medical College was dedicated Nov. 10. The building, purchased last year, was entirely reconstructed following a substantial gift from an anonymous donor. The various Cardeza units, which had been dispersed throughout the Jefferson Medical College and Medical Center, have now been brought together in ample space. Operations of the laboratory are devoted to research in blood diseases.

#### **Johns Hopkins**

The appointment of Dr. WALTER H. SHELDON as professor of pathology at the School of Medicine was announced recently by the university's president, Dr. MILTON S. EISENHOWER. Dr. Sheldon has held a similar position at Emory University in Atlanta.

#### **Kansas**

Dr. JESSE D. RISING, a member of the staff of the Kansas Medical Center for 21 years, has been named chairman of the department of postgraduate medical education. He succeeds Dr. MAHLON H. DELP, who recently was named head of the department of internal medicine.

Active in the American Academy of General Practice, Dr. Rising helped establish a postgraduate course sponsored by it, "Medicine and the Family Physician," now in its 12th year. This course has six sessions for family doctors at the K.U. center each winter.

#### **Louisville**

A \$97,146 federal grant has been approved to help pay for equipping the medical-dental research building planned by the university. The University of Louisville was one of 16 institutions receiving such grants totaling \$3,049,999 by the National Institutes of Health of the Public Health Service.

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**Maryland**

The University of Maryland is also one of the schools to receive funds from the NIH for research facilities. A clinical research center, devoted to fundamental studies of diseases in man, will be established at University Hospital with the \$601,686 allotment. Dr. THEODORE E. WOODWARD, head of the department of medicine, will be responsible investigator of the new center.

According to Dr. WILLIAM S. STONE, dean of the School of Medicine, the new center will serve as the nucleus of a broad research program aimed at a more rational approach to the treatment and prevention of human disease.

**Michigan**

Dr. CHRIS J. D. ZARAFONETIS, former member of Temple University's Medical School, has been appointed professor of internal medicine and director of the Simpson Memorial Institute. His appointment fills the vacancy caused by the death of Dr. FRANK BETHEL in April, 1959.

This will be a return home for Dr. Zarafonetis, who received three degrees from Michigan and was on the Medical School faculty from 1946 to 1950 when he left to go to Temple University.

Dr. MURIEL C. MEYERS has been named associate director of the Institute. She has been with the Institute for more than 15 years and has served as acting director since Dr. Bethel's death.

**Nebraska**

Establishment of a master's degree program in psychiatric occupational therapy, thought to be the first of its kind in the U.S., has been announced by the University of Nebraska.

The course will be given at the Nebraska Psychiatric Institute under the supervision of the department of neurology and psychiatry of the College of Medicine.

To be eligible for the advanced study, applicants must be graduates of an accredited school of occupational therapy and hold a bachelor's degree.

**North Carolina**

The establishment of a research facility at North Carolina will be made possible with a \$897,528 grant from the National Institutes of Health. The new research unit will be directed by Dr. WALTER HOLLANDER, JR., assistant professor of medicine and Markle Scholar in medical science.

Plans are under way to have the new research facility opened by next spring or early summer. The facility will open with 10 beds for patient care, all to be located in private or semi-private rooms. This will eventually be increased to 12 to 15 beds.

**Northwestern**

Dr. LOYAL DAVIS, professor and chairman of the department of surgery, is the prospective new chairman of the board of regents of the American College of Surgeons. He is the first Chicagoan to hold this position as head of the nation's 23,000 surgeons.

It was Dr. Davis who started the campaign, some ten years ago, against the evils of fee-splitting, unnecessary operations, and over-charging.

Dr. Davis is also surgical chief at Passavant Memorial Hospital, Chicago.

**Ohio State**

An Institute of Perinatal Studies to carry out fundamental and clinical research into the causes and prevention of death and disability in unborn and newborn babies has been established at the medical school. The institute will bring together more than 50 associates of six colleges and the Graduate School with facilities of the University Health Center, Research Center, and Columbus Children's Hospital in a concerted investigation of the perinatal problem.

Pending their appointment by the university's board of trustees as co-directors, Dr. JOHN H. ULLER, professor and chairman of obstetrics and gynecology, and Dr. EARL H. BAXTER, professor and chairman of pediatrics, tentatively head the institute.

Dr. ALDEN E. STILSON, JR., formerly associated with the College of Medicine at the

University of Louisville, has been appointed director of the new Health Center Research Laboratories.

Dr. JAMES VAUGHN WARREN of Galveston, Texas, will become professor and chairman of the department of medicine, next April 1. He will succeed the late Dr. BRUCE K. WISEMAN, who died last March. Now chairman of the department of internal medicine at the University of Texas, Dr. Warren is also national vice president of the American Heart Association.

### Oregon

The division of chest diseases will have a new chairman with the appointment of Dr. DONALD M. PITCAIRN to the post. He succeeds Dr. JOHN E. TUHY, who will remain on the faculty as associate clinical professor of medicine.

A graduate of the Oregon Medical School in 1945, Dr. Pitcairn served there as instructor in physiology from 1949 to 1952. He returned to the faculty in 1955 after spending two years as a research fellow in medicine at Harvard Medical School and assistant in medicine at Peter Bent Brigham Hospital, Boston.

### Pennsylvania

A graduate course in medical hypnosis will be offered to physicians and dentists by the university's Graduate School of Medicine in 18 weekly afternoon sessions which began December 7. The School's department of neurology and psychiatry has been in charge of organizing the sessions. The staff of eight which will teach the course is headed by Dr. LAUREN H. SMITH, professor and chairman of psychiatry. Dr. Smith is physician-in-chief at The Institute of the Pennsylvania Hospital and vice-chairman of the AMA Council on Mental Health.

### Rochester

Dr. LEE B. LUSTED, associate professor of radiology, has been named chairman of a National Institutes of Health Advisory Committee on Computers in Research. Dr. Lusted will counsel on the numerous biomedical computer grant applications and advise Dr. JAMES A. SHANNON, NIH director, on the role that NIH should play in support of research involving the use of computers.

Dr. WALLACE O. FENN, member of the medical school faculty since 1924, returned

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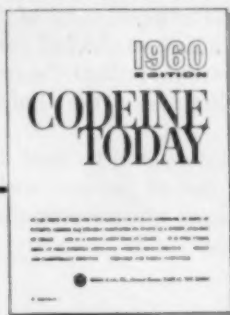
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from abroad recently with an honorary degree from the University of Paris Faculty of Medicine.

Rochester is another of the schools that has been awarded a grant from the NIH for the establishment of a new clinical research center. With a grant of \$244,696, the new facility will involve remodeling and rearranging of the former metabolism ward, and will provide accommodations for eight patients, as compared with the four-patient unit in the old ward. Its clinical director will be Dr. CHRISTINE WATERHOUSE, associate professor of medicine, and an interdepartmental committee will have overall responsibility for the unit.

#### **Saint Louis**

Dr. LESLIE D. CASSIDY, assistant professor of clinical medicine, died October 24, at age 63. Dr. Cassidy, a member of the faculty for 23 years, specialized in gastroenterology.

#### **Seton Hall**

An award of \$971,768 is the amount Seton Hall received from NIH for remodeling, staffing and equipping new research facilities. The grant is the largest ever received by the school, which was established in 1956, and graduated its first class last June.

Dr. HAROLD JEGHERS, director of the department of medicine and chief of the ward medical service of the Medical Center, was named general director of the clinical research center.

The research center will be used for the observation and care of patients with rare diseases and patients who are receiving new drugs or treatments.

#### **South Carolina**

Work on a new \$1,160,000 clinic and research building will begin in March, school officials predicted recently. Six stories in the new building will be devoted to facilities for basic medical research projects. The first floor will be used as an out-patient clinic.

The University was awarded a grant of

\$498,283 in August by the Public Health Service toward the research center.

#### **South Dakota**

Dr. GEORGE W. KNABE, JR., has been appointed chairman and professor of pathology. He succeeds Dr. AMOS C. MICHAEL, who has been granted a leave of absence to accept an assignment to the University of Pakistan at Karachi.

New appointments to the faculty include Dr. J. N. SPENCER, associate professor of pharmacology and Dr. ARNOLD L. PRITSCHOW, assistant professor of pharmacology.

#### **Stanford**

Dr. SEYMOUR KOLKO, assistant professor of psychiatry, has been named Assistant Dean for student affairs in the Medical School. Student affairs were previously handled by Associate Dean LYMAN M. STOWE, who is still responsible for academic affairs.

The new Assistant Dean joined the Stanford faculty in 1955 as an instructor. Dr. Kolko's special field is psychiatric rehabilitation and he has been a consultant for the San Francisco branch of the California Vocational Rehabilitation Services since 1955.

#### **Temple**

Construction of a \$4.5 million research building at the Temple University Medical Center is scheduled to start in December. The Public Health Service provided \$1,528,000 for the project through its Health Research Facilities Branch. Funds were also donated by the medical alumni of the university.

To accommodate rapidly changing requirement of research projects, architects have drawn plans for a windowless building with movable wall partitions to provide maximum wall and floor space. Completion of the building is scheduled for 1962.

#### **Tennessee**

According to university officials, the College of Medicine will place more emphasis on

the use of clinic out-patients in teaching medical students. Thus, a new position, that of director of medical clinics, is being created to emphasize the use of ambulatory patients in the teaching process.

To head the new post is Dr. JOHN W. RUNYAN, associate professor of medicine at the Albany Medical College. Dr. Runyan is a graduate of Washington and Lee University and received his M.D. degree from Johns Hopkins University School of Medicine.

#### **Vanderbilt**

Vanderbilt University is another of the institutions which will receive a sizable grant from NIH for a clinical research center. A total sum of \$1,168,094 over a three-year period has been allocated by NIH for this purpose.

Dr. ELLIOT V. NEWMAN, who will be director of the interdepartmental center at the School of Medicine, said two successive grants of \$355,565 in 1961 and 1962 will be added to the initial grant of \$456,964, which was received Nov. 1.

Construction is nearing completion on a seven-floor addition to A. B. Learned Graduate Science Hall at Vanderbilt. The laboratory will house research activities of the basic medical science departments and health related research.

Dr. F. TREMAINE BILLINGS, professor of medicine, has been appointed Dean of Students in the Medical School. Billings will coordinate the activities of committees concerned with student admissions, aid and counseling with respect to careers in academic matters. He is a graduate of Princeton, Oxford, and Johns Hopkins Universities.

#### **West Virginia**

The appointment of Dr. BYRON M. BLOOR as associate professor of surgery and chairman of the division of neurosurgery was announced recently by the university President, ELVIS J. STAHR, JR. Since 1957, Dr. Bloor has been assistant professor of neurosurgery at the Western Reserve University School of Medicine, chief of neurosurgical service at Cleveland City Hospital, and assistant or attending neurosurgeon at several other Cleveland hospitals.

#### **Wisconsin**

Dr. H. KENT TENNEY was honored by Wisconsin pediatricians recently with the establishment of an annual H. Kent Tenney lectureships at the University of Wisconsin Medical School. Dr. Tenney, in addition to maintaining a private practice, has served as clinical professor of pediatrics at the university and held numerous state positions.

## ITEMS OF CURRENT INTEREST

### NIH Appropriations to 19 Schools

Nineteen medical schools have now been awarded funds by the National Institutes of Health for establishing clinical research centers.

Last spring, eight institutions received an initial grant of \$3 million made available by Congress for the fiscal year ending June 30, 1960. The allocation of \$4.5 million this fall to 11 more institutions is part of the \$20 million Congress earmarked for clinical research centers during the fiscal year.

An initial clinical center grant can be used by an institution for renovating and equipping existing laboratory and patient care facilities and for getting the new project under way. Follow-up grants can be used to contribute to the total support of the center, including bed costs, laboratory expenses and salaries.

Of the \$20 million allocated by Congress, NIH is to assign \$8 million to clinical centers planning to do so-called non-categorical research, and \$12 million for centers working in categorical fields. The National Cancer Institute and the National Heart Institute will each use \$5.5 million for centers in categorical research. The remaining \$1 million will be evenly divided for clinical center grants from the Institute of Mental Health and the Institute of Neurological Diseases and Blindness.

The funds going to the 19 schools are in the non-categorical bracket and come from the Division of General Medical Sciences.

The Division of General Medical Sciences has established a Clinical Research Center Section within the Research Grants Branch, under Dr. Carl R. Brewer. Dr. Sam Silbergeld has been named Chief of the Section.

More than 20 institutions have already expressed their desire for grants from the

\$5.5 million available for heart research centers. Seventeen institutions have now submitted their applications to NINDB for funds.

Appropriations amounting to approximately \$100 million a year for the support of about 150 to 200 research centers is the ultimate goal.

### Name Is Changed

The name of the Physical Biology Training Program of the Division of General Medical Sciences, National Institutes of Health, has been changed to the Biophysical Sciences Training Program.

### New Appointments in HEW

Surgeon General Leroy E. Burney has announced three newly created Public Health Service positions.

Dr. James M. Hundley, serving directly under Assistant Surgeon General Arnold B. Kurland, is named Assistant Surgeon General; Mr. Harry Hanson has been named to the new post of Associate Chief of the Service's Bureau of State Services, with the rank of Assistant Surgeon General; and Dr. Aaron W. Christens has been appointed to the second new Associate Chief position in the Bureau of State Services, with the rank of Assistant Surgeon General.

### Funds for Nursing Education

Establishment of a fund to meet the urgent and growing needs for adequately educated nurse leaders to match America's \$13 billion investment in hospitals was announced recently.

George F. Smith, president of Johnson & Johnson, and president of the National Fund for Graduate Nursing Education, said that the initial goal of the Fund was \$1 million for the first year.

The National Fund for Graduate Nursing Education has been established by a group of national leaders to give graduate nursing education programs urgently needed support and thus break a bottleneck that affects all efforts to provide enough bedside nurses, Smith said. Groundwork for the Fund was financed by grants from the Rockefeller Foundation and other sources, following a study by the Institute of Research and Service of Teachers College, Columbia University, of institutional costs of graduate nursing education made possible by a grant from the Sealantic Fund.

#### **Fellowships in Industrial Medicine**

The University of Cincinnati's Institute of Industrial Health is offering graduate fellowships in industrial medicine. The Institute, which is in the College of Medicine, provides professional training for graduates of approved medical schools who have completed at least one year of internship.

The three-year program leading to the degree of Doctor of Industrial Medicine satisfies the requirements for certification in Occupational Medicine by the American Board of Preventive Medicine.

Stipends for the first two years vary from \$3,000 to \$4,000 depending upon marital status. In the final or residency year the fellow is compensated by the organization in which he is completing his training.

For further information, write to the Secretary, Institute of Industrial Health, College of Medicine, Eden and Bethesda Avenues, Cincinnati 19, Ohio.

#### **Awards in Pharmacology**

Wyeth Laboratories of Philadelphia has established the Torald Sollmann Award in Pharmacology to commemorate the pioneer work in America of Dr. Torald Sollmann in the fields of pharmacological investigation and education.

The \$2,500 award, and an appropriate medal, will be given for significant contemporary contribution to the advancement and extension of knowledge in the field of pharmacology.

Further details of the award may be obtained by writing to the Secretary of the American Society for Pharmacology and Experimental Therapeutics, 9650 Wisconsin Avenue, Washington, D.C.

# PERSONNEL EXCHANGE

## Faculty Vacancies

**MICROBIOLOGIST:** The University of Alberta invites applications for the position of assistant professor in the department of medical bacteriology. Candidates should be medically qualified or possess a higher science degree. Experience in medical bacteriology or virology is useful but applicable experience in basic science fields may be as valuable. Teaching and research duties with variable amount of service responsibility depending on nature of appointment. Present salary range \$6,000-\$8,200. Applications and inquiries which should be accompanied by full curriculum vitae may be sent to the Dean, Faculty of Medicine, the University of Alberta, Edmonton, Alberta, Canada.

**BIOCHEMIST:** Ph.D., full-time investigation of fundamental aspects of peritonitis plus independent research. Joint academic appointment. Salary dependent upon professional experience. Department of Surgery, Louisiana State University School of Medicine, New Orleans 12, La.

**ORTHOPEDIC SURGEON:** Professor and head of department of orthopedics required. Full-time position with emphasis on developing research program in East Coast Medical School. Address: V-95.

**PEDIATRICIAN:** Full-time university appointment. For active teaching program of undergraduates and residents. Interest in teaching general pediatrics and child health; specialized interests also encouraged. Rank and salary commensurate with experience. Mail curriculum vitae to V-96.

**PHARMACOLOGIST:** Full-time appointment as assistant professor in department of pharmacology, Ph.D. or M.D. Salary, \$6,000 to \$8,500 according to qualifications. Interested candidates should send a complete curriculum vitae and recent photograph to Dr. M. F. Murnaghan, Professor and Head, Department of Pharmacology, University of Ottawa, Ottawa 2, Ontario, Canada.

**PSYCHIATRIST:** Full-time academic position as instructor or assistant professor in dynamic new department of psychiatry. Opportunities for teaching, research, and clinical experience on inpatient, outpatient, and/or consultation services. Departmental emphasis is on community psychiatry. Must have completed approved residency training. Rank and salary based on qualifications and ability. Write: Dr. James M. A. Weiss, Department of Psychiatry, University of Missouri School of Medicine, Columbia, Mo.

**BIOCHEMIST:** Qualified Ph.D. needed for department of pathology in Southwestern medical school. Position carries title of assistant professor with an annual salary of \$7,600. Work consists of directing clinical chemistry laboratory and setting up microtechniques in affiliated hospital. Also involves assistance in teaching clinical pathology to second-year medical students. Ample opportunity for research. Address: V-97.

**INTERNIST:** Full-time position available at university affiliated hospital for internist to run research-metabolic unit, conduct own research, and help with teaching house staff and students. Address: V-98.

**DIRECTOR OF PROFESSIONAL SERVICES:** Large affiliated VA General Hospital. Certified specialist with more than casual experience in residencies and research and a flair for administration. Faculty appointment appropriate for qualifications. Active expanding research programs. Ambitious, mature personality. Salary \$15,789-\$17,200. Address: V-99.

**PHYSIATRIST:** Board certified, mature personality, Chief, Physical Medicine and Rehabilitation Service, large affiliated general VA Hospital, Southwest. Challenge-

ing residency and research programs. Qualified for professional appointment. Salary \$15,789 to \$17,200. Address: V-100.

**PSYCHIATRIST-DIRECTOR:** For new 39-bed adult inpatient service in 350-bed, medical school-affiliated, acute general hospital. Should be Diplomate or Board eligible. Planning resident training, research and service programs; dynamic orientation with psychotherapy as primary therapeutic approach. Excellent voluntary staff prepared to cooperate actively. Eligibility for Michigan licensure required. Position would be full-time; salary commensurate with candidate's qualifications. Write, including curriculum vitae, to Julien Priver, M.D., Director, Sinai Hospital of Detroit, 6767 W. Outer Drive, Detroit 35, Mich.

**INTERNIST:** Young, to serve full-time as assistant chief of service in university affiliated, all charity hospital recently opened. Faculty status. Salary \$10,000. Address inquiries to Dean, Louisiana State University School of Medicine, 1542 Tulane Avenue, New Orleans 12, La.

**MEDICAL ARTIST:** Full-time position for a formally-trained medical artist in a medical school serving all departments. Recent graduate preferred. Salary according to qualifications. Address: Professor J. V. Basmajian, Department of Anatomy, Queen's University, Kingston, Ontario, Canada.

**NEUROANATOMIST-NEUROPHYSIOLOGIST:** Research associate in neurology to work full time on research project. Teaching opportunities optional. Duration three years at salary of \$6000 plus, depending on experience and degrees. Write giving curriculum vitae to Dr. W. T. Niemer, Vice-Chairman, Department of Anatomy, The Creighton University School of Medicine, 302 N. 14th St., Omaha 2, Nebraska.

**VIROLOGIST:** To associate with studies on the epidemiology of virus diseases. Research and teaching position in medical school in mid-South. Opportunity for independent work. Ph.D. or M.D. Salary and rank according to qualifications. Address: V-101.

**PSYCHIATRIST:** On research ward, VA Hospital, Houston, Texas. Current research activity primarily focused on biochemical, physiological, and psychological aspects of schizophrenia. Numerous scientist collaborators, facilities available for pursuit of individual research problems. Hospital closely affiliated with Baylor University College of Medicine and Texas Medical Center. Salary up to \$17,200 depending on individual qualifications. Write Alex D. Pokorny, M.D., Chief, Psychiatry and Neurology Service, VA Hospital, Houston, Texas.

**VIRUS RESEARCH:** M.D. or Ph.D. interested in infectious diseases, basic studies on mechanisms of infection and on etiology, pathogenesis and epidemiology of virus diseases of infancy and childhood. Excellent facilities. Salary \$6,000 per annum. Address: V-102.

**MICROBIOLOGIST:** Research and teaching in medical school in the Northeast. Background in virology preferred. Opportunity for independent research. The rank is that of instructor, with salary dependent on qualifications. Address: V-103.

**PEDIATRICIAN:** Full-time instructor or assistant professor with salary based on training and experience. Can build own interest in newly reorganized department of a rapidly developing private university. Mail curriculum vitae to T. K. Pfundt, M.D., Chairman, Department of Pediatrics, The Creighton University School of Medicine, 302 N. 14th St., Omaha 2, Nebr.



To aid in solution of the problem of faculty vacancies, MEDICAL EDUCATION will list persons and positions available, as a free service. The school department or person may have the option of being identified in these columns or of being assigned a key number for each position listed. Mail addressed to key numbers will be forwarded to the person or department listing the request.

Information for these columns should reach the Personnel Exchange, Journal of Medical Education, 2530 Ridge Avenue, Evanston, Illinois, not later than the 10th of the month which precedes the month in which the listings will appear.

### Personnel Available

**INTERNIST:** Age 33; certified in medicine. Trained in clinical medicine, teaching and research at university hospital and the N.I.H. Director of medical education at university affiliated hospital in New York City for past three and one-half years. Experience in private practice and epidemiology. Desires geographic full-time position at medical school or hospital, with opportunities for teaching and research as well as consultation and limited practice privileges. Address: A-446.

**PREVENTIVE MEDICINE PHYSICIAN:** M.D., M.P.H. and Dr. P.H. Desires teaching position on medical school faculty. Numerous publications. Previous teaching and health department experience. Special interests are epidemiology, biostatistics, and preventive medicine. Address: A-447.

**BACTERIOLOGIST-IMMUNOLOGIST:** Ph.D. Married, family. Eleven years experience in clinical bacteriology, serology, and blood grouping and as Director of the blood bank. Extensive teaching experience at medical school level. Publications. Desires hospital position with research potential and university faculty status. Address: A-449.

**PHYSICIAN:** M.Sc., M.D., age 38, presently on staff of Australian university, desires teaching position in department of medicine at American university. Trained in England and United States. Numerous publications; broad background. Speciality, cardio-vascular diseases. Address: A-450.

**PEDIATRICIAN-PUBLIC HEALTH:** M.D., M.P.H., Past experience includes private clinical practice, teaching preventive medicine and school health. Fellow, American Academy of Pediatrics. Desires part-time position in public or student health with academic affiliation. Address: A-451.

**ADMINISTRATOR:** M.D., age 36. Five and one-half years in administration of large federal medical education program and government medical research contracts. Graduate training in clinical pathology. Desires administrative post in medical school, preferably with opportunity for teaching and research. Address: A-452.

**EDUCATIONAL DIRECTOR:** Surgeon, with seven years' university and administrative experience as assistant professor and director of a large multi-service residency program in a Veterans Administration hospital. Position sought in a university or community hospital, full or part-time, with access to research facilities. Address: A-453.

**PATHOLOGIST:** Federal pathologist desires chairmanship of department or professorship of anatomic pathology in a university medical school or affiliated civilian general hospital. Currently conducting research which would continue; contributor to medical texts and journals. Availability of space, facilities, full-time personnel and opportunity to teach medical students and train residents deciding factors in accepting a position. Address: A-454.

**PHYSIOLOGIST-PHARMACOLOGIST:** M.S., Ph.D., age 32, married, 2 children. Nine years training and research experience in physiology and pharmacology, with specialization in cardiac electrophysiology and pharmacology. Former National Heart Institute and American Heart Association research fellow. Desires academic, hospital, or affiliated research institute research appointment with opportunity to initiate and organize own research program in cardiovascular pharmacology and physiology. West Coast location desired. Address: A-455.

**INTERNIST:** M.D., age 40. Experienced in teaching, clinical investigation (metabolism), patient care, and administration. Desires full-time post with teaching hospital—medical school. Address: A-456.

**EXFOLIATIVE CYTOLOGIST:** M.D., with 12 years' training. University experience in teaching and research (cyto-histochemistry). Desires appointment in a university department or in cancer institute with exfoliative cytology program and opportunities for research. Address: A-457.

**PHARMACOLOGIST:** M.D., Ph.D., age 36, married. Seven years teaching and research experience in structure-activity-relationships. Desires academic position with facilities and atmosphere conducive to develop research program. Address: A-458.

**GENERAL SURGEON:** M.D., F.R.C.S.(C). Board eligible. Excellent references. Age 35. Teaching experience in anatomy, pathology and surgery. Desires association with hospital, medical school, or group with part-time teaching responsibilities. Address: A-459.

**PATHOLOGIST:** Age 36. Certified in clinical and anatomical pathology, presently on medical school faculty. Desires to combine service with teaching or hospital educational program. Address: A-460.

**PHYSIOLOGIST:** Ph.D., male, age 31, 1958 graduate with teaching experience in medical schools. Interested in academic position in medical school with research opportunities. Present rank, Assistant Professor. Currently on NIH research grant. Available fall 1961 (possibly spring 1961). Address: A-461.

**INTERNIST:** F.A.C.P., age 43. Consulting physician in large Eastern charity hospital desires full-time position in department of medicine at Professor of Clinical Medicine level. Primarily interested in metabolism but will consider other sections. Broad training in most subspecialties; basic experience with isotopes. Extensive clinical investigation. Numerous publications since 1947. Diplomate American Board Internal Medicine. Address: A-462.

**PHYSIOLOGIST-BIOCHEMIST:** Ph.D., faculty member Medical School. Experienced with isotopic and biochemical techniques applied to basic problems in endocrinology, metabolism, and cellular physiology. Publications and societies. Teaching experience. Desires career faculty appointment in physiology or biochemistry with opportunity for independent research. Address: A-463.

**PHYSIOLOGIST:** M.D., age 35, male, family. Currently in charge of course as associate professor of physiology in Latin American medical school. Approximately 5 years experience in pathology and research laboratories in U.S. Desires teaching position in physiology at U.S. Medical School. Address: A-464.

**GENERAL and THORACIC SURGEON:** Certified both Boards and eight years training including research fellowships. Experience includes cardiac surgery. Desires academic position with opportunity for research; minimal clinic load to remain familiar with problems in applied surgery. Administrative responsibilities easily accepted. Address: A-465.

**PATHOLOGIST:** Certified P.A. and C.P., 1950. Eleven years teaching experience. Special interests: cytologic diagnosis, chest and tuberculosis pathology. Now engaged in hospital pathology and wishes to return to full-time teaching and research. Address: A-466.

**NEUROLOGICAL SURGEON:** Age 36, unmarried. Desires academic position for clinical investigation with access to teaching and research. Would also consider a position in a city, county, or federal institution affiliated with a medical school. Address: A-467.

**PATHOLOGIST:** Widely experienced, Board Diplomate (P.D.), Associate professor, director of laboratories. Desires teaching position with a minimum of administrative responsibility. Available Fall of 1961. Address: A-468.

**PATHOLOGIST:** Age 37. Certified in clinical and anatomical pathology. Presently on medical school faculty. Desires to combine directorship of hospital laboratory with teaching or hospital educational program. Administrative experience. Address: A-469.

**SURGEON, THORACIC:** Age 35, four children. M.D., 1951. A.O.A. Medical school residency five years. Diplomate American Board of Surgery and Thoracic Surgery.

F.A.C.S. Desires position in surgical department of medical school, with emphasis on teaching and clinical work with opportunity for research. Wishes to locate in South-eastern section of U.S. Address: A-470.

**PARASITOLOGIST-PUBLIC HEALTH:** Ph.D., M.S. (Zoology), M.S.P.H. Age 32, married. Desires permanent position involving teaching and research. Experience includes teaching medical parasitology and bacteriology. Currently at work on a full year post-doctoral training program in parasitology. Available July 1, 1961. Address: A-471.

**SURGEON:** Age 34, M.B., B.S. (Univ. of London), F.R.C.S. (England). Wide experience in general surgery and teaching. Eight years postgraduate training in teaching hospitals, including one year in basic science and research and one year as surgical resident in Canadian teaching hospital. Seeks full-time surgical appointment in U.S. medical school. Address: A-472.

**PUBLIC HEALTH PHYSICIAN:** B.A., M.D. Diplomate, American Board of Preventive Medicine. Fellow, American College of Preventive Medicine. Desires academic appointment with a School of Public Health or a Medical School with a public health course. Experienced in public health administration, public health practices, medical administration. Credentials on request. Address: A-473.

**PEDIATRIC CARDIOLOGIST:** Age 39, qualified for examination by American Board of Pediatric Cardiology. Now full-time, desires half-time university appointment. Catheterization laboratory necessary. Address: A-474.

**MEDICAL ADMINISTRATOR:** Harvard trained, Ph.D. Seeking position as medical school administrator-graduate school dean. Broad experience in administration, teaching, research and writing. Author and co-editor of several well-known medical books. Vast experience in basic subjects and clinical subjects at Harvard and Harvard hospitals. Numerous publications. Address: A-475.

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1. Klein, N. W.: *Pediat. Clin. North America*, Nov., 1954, pp. 949-962.

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